DAIRY PRICE POLICY: • SETTING • PROBLEMS • ALTERNATIVES

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FOREWORD

This report was prepared at the direction of Howard W. Hjort, Director of Economics, Policy Analysis and Budget, U.S. Department of Agriculture. It reviews economic relationships in the dairy industry, existing Federal price policy and programs, and alternatives available in dealing with both short-run and long-run problems.

It deals primarily with the problem of supporting milk prices and the alternatives available in pursuit of that objective. It discusses a number of major policy issues in connection with the milk marketing order program and cooperative policy, but the analysis is much less complete in regard to these complex problems. An extensive research program on these problems and the effects of alternative approaches to them will be required to delineate the policy choices.

A great deal of credit is due to Robert March and Joel Blum, Agricultural Marketing Service; Sidney Cohen and Margery Kemper, Agricultural Stabilization and Conservation Service; Bryant Wadsworth and Edward Karpoff, Foreign Agricultural Service; and to Boyd Buxton, Richard Fallert, Alan Walter, George Tucker, and James Haskell of ESCS. They cannot be held responsible for the results.

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SUMMARY

Federal programs have been deeply imbedded in the economic fabric of the U.S. dairy industry for more than 40 years. The economic characteristics and performance of the industry have changed drastically and further changes are inevitable. Yet, the basic structure of Federal dairy price policy and Federal dairy programs is largely unchanged, although there have been highly significant changes within Federal programs--especially market orders--to adapt to changes in the dairy economy.

Federal outlays and stocks of dairy products are rising rapidly. With feed prices down from the high levels of 1973-75 and milk prices up somewhat, milk production is relatively profitable and production has risen faster than consumption.

The minimum price support level is 80 percent of parity through September 1979. A midyear adjustment in supports is required through 1981. Outlets for disposition of dairy products acquired by CCC in price support operations are severely restricted, compared to periods of high production in the 1960's, so CCC stocks are growing large.

The Current Situation and How it Developed

Much of the stability in the dairy industry which existed for over 20 years up until 1973 was provided by the large stocks of feed grains in the hands of the CCC, which kept feed--the major cash expense of dairy farmers--relatively stable in price. When the excess grain stocks disappeared, a major source of stability in the livestock economy and the dairy industry no longer existed, as the escalation of feed prices in the early seventies demonstrated.

As long as milk-feed price relationships were fairly stable, milk output per cow increased year after year. Escalating feed prices caused cutbacks in feeding rates and production per cow actually decreased in 1973 for the first time in modern memory and rose only modestly in 1974 and 1975. The rate of increase in output per cow jumped to a record in 1976. It was lower in 1977 but still high.

The total number of milk cows on farms decreased throughout the postwar period, but the rate varied.

Since 1956, per capita consumption of dairy products has dropped 22 percent, while population has increased 30 percent. Total consumption rose 2 percent. But only a little more than a third of the decline in consumption was due to a drop in sales to consumers, restaurants, and institutions. The rest was due to the near disappearance of the farm with one or two cows producing milk for home consumption and to smaller USDA donations.

Per capita sales of all dairy products (milk equivalent) declined rapidly in the sixties and have now leveled out.

Price Support Program Operations

The price support program directly provides a floor under the price of manufacturing milk and, indirectly, provides support for all milk.

Within the limits of the law, the Secretary of Agriculture is required to set a support price which will bring forth an adequate supply of milk to meet the needs of American consumers and preserve productive capacity to meet anticipated future

needs. The minimum support price for milk has been raised from the 75 percent level in the basic law to 80 percent by Congress three times--in 1960, 1973, and 1977. In 1957, 1975, and 1976, legislation raising the minimum level was passed but vetoed.

The support price has been set at the maximum and minimum permissible levels and at various levels in between. When the support price was set at 80 to 90 percent of parity, Government purchases and program costs increased within 1 to 2 years and prices could not be sustained at those levels without large CCC purchases. Thus, it appears that the longer run supply-demand level of milk prices was about 75 percent of parity in 1953-73, a period of relatively stable feed prices.

Outlets for CCC stocks are much smaller than they were in the early sixties, as domestic donation outlets were reduced with the replacement of direct distribution to families by the Food Stamp Program. Foreign donations are restricted by budgets and subsidized exports are gone.

Price and Income Results

Compared to other prices in the economy, farm prices of milk have generally risen less rapidly than the prices of all farm products and the implicit price deflator for gross national product, a measure of inflation in the entire economy.

There are no comprehensive statistics on incomes of dairy farmers. Therefore, we have used figures from farm account records compiled by the Extension Services in New York and Wisconsin. Dairy farm returns are measured here in terms of returns to operator and family labor, management, and equity in investment. This is the total farm return to the dairy farmer, which is available for family living, investment, or other purposes, along with any nonfarm income. These figures are the most comparable to family income in other segments of the economy, although they are far from perfect measures.

Compared with earnings in the rest of the economy, these figures are somewhat above average family income (which includes returns on investment). These figures for dairy farm income do not include income from nonfarm sources, which contributed an average of $2,400 per farm on commercial dairy farms in the United States in 1974.

These figures on producer returns suggest that, for this group of average sized commercial dairy farms in two principal dairy States, returns from the farm are comparable on the average to those of other groups in the economy. The investment of these dairy farmers is almost certainly substantially larger than the average for all families. On the other hand, these dairy farm returns omit off-farm income and capital gains from the increase in value of farm real estate. Capital gains would be roughly in proportion to investment, or larger for dairy farms than for the all-family average. If the policy goal is equality of income with the nonfarm economy, it would appear that supports at 75 percent of parity can achieve that goal.

Retail prices of dairy products have increased more slowly than the average for all food since 1965. The 92-percent increase for dairy products was almost the same as that for the entire Consumer Price Index. In other words, retail dairy product prices contributed slightly less to inflation than did other foods on the average, and about the same amount as the average of all items.

With a continuation of current dairy programs and supports at 75 percent of parity after 1979, production will decline modestly, reaching a low point of the cycle about 1981-82, and then beginning to increase once more.

Commercial use will increase about in line with population. CCC removals would decline from the anticipated 5.9 billion pounds in 1977-78 to about 1 billion pounds per year in the early eighties. With supports at 75 percent of parity, production would then rise more rapidly than consumption and CCC removals would increase to 2 billion pounds in 1982-83 and to perhaps 3 billion pounds in the mideighties.

If during that period there are 2 years of crop disaster here or abroad back-to-back, it is likely that feed prices will increase sharply and, not being fully reflected in the parity index and thus in milk support prices, milk production will decline. A single bad crop at any one time during that period will have much smaller consequences on feed prices and milk production.

Alternatives in Dairy Policy

The basic policy choice is between (1) providing--as the present programs were designed to do--a measure of price stability to dairy producers and consumers by setting floors at minimal levels and (2) supporting milk prices substantially above market clearing levels in order to provide higher incomes to dairy farmers. If the choice is to provide stability, the present programs can be effective. If the choice is income enhancement, other programs will have to be used to restrain production or encourage consumption or both.

Operations of the Present Program

The present problem of price support levels too high for supply-demand conditions results from using the existing programs for income enhancement when they were designed only to provide stability at minimal levels. At the increasing minimum support levels required until October 1979, milk production is profitable for many farmers, and production has expanded more rapidly than commercial sales. Government stocks and costs are rising and outlets, especially for nonfat dry milk, are limited.

The policy options available to deal with this immediate situation are limited and not very helpful. Import quotas could be tightened, reducing Government purchases nearly pound-for-pound with the reduction in imports. But such a move is almost certainly ruled out by the present status of trade negotiations. Eliminating all quota imports, if possible, could reduce CCC purchases by about one-fifth.

Authority exists to change the products purchased by CCC or their relative prices, but these will not reduce Government costs significantly. Such a change would create adjustment problems in the industry and give advantages to some groups of producers and processors at the expense of others.

With donations at expected levels and some concessional sales of nonfat dry milk for feed use at home and abroad, CCC inventories of butter and cheese will increase through the end of the 1978-79 marketing year and inventories of nonfat dry milk will be only modestly lower in September 1979 than they were 2 years earlier.

Sales by CCC are being made at reduced prices for restricted uses, mostly nonfat dry milk for calf milk replacer at about 25 cents per pound, competing with whey and caseinates. Larger quantities could be sold for use in mixed feeds at prices competitive with soybean meal, about 8 cents per pound.

Nonfat dry milk could be sold for use in casein manufacture, displacing some imported casein and adding to domestic use of nonfat dry milk. However, such an action might be interpreted as interfering with international trade in casein, adversely affecting trade negotiations.

Some sales of nonfat dry milk could be made abroad for calf milk replacer and veal calf feed at reduced prices.

Modifications of the Purchase Program

The price standard for the price support program has been stated in terms of parity since 1949. Beginning with the 1973 Act, there has been a shift for many other commodities from parity to cost of production. Milk is now one of the few commodities using the parity standard. Parity does not fully reflect dairy farm input prices.

Alternative standards include:

- Cost of production. Difficult and thus slow to compute. Confounds the effects of variations in weather, grain yields, feeding rates, technological change, and prices of inputs.

- Prices paid for dairy farm inputs. Simple and quick to compute. Reflects dairy farm input prices.

- Adequate supply. Price supports set at whatever level needed to bring forth enough milk to meet consumer demand without large CCC purchases.

--if Federal dairy policy is to provide stability rather than significant income enhancement for dairy farmers, regardless of the standard used, flexibility must be provided to determine the level of price support in the light of supply and demand conditions. An income enhancement objective with supply control would reduce the need for flexibility. Permanent legislation provides a range from 75 to 90 percent of parity with the current restriction of 80 to 90 percent of parity. If parity is retained as the price standard and stability is the objective, increased productivity may make it necessary in time to reduce the minimum percentage of parity to 70 percent.

One possibility is to relate the discretionary price support range available to the Secretary to the level of CCC purchases. This would provide a narrower range in which the Secretary would have discretion but would relate that range to supply and demand conditions. For example, if CCC purchases were more than 3 percent of supply, the discretionary range might be 70 to 80 percent of parity. If CCC purchases were below 3 percent, the range could be 75 to 85 percent of parity.

Alternative Price Support Programs

If stability is the objective and imports can be regulated, a purchase program such as the present one can work. Government costs would be modest except at the point in the cycle where production was relatively large and prices would dip to the support level. The purchase program avoids the necessity for detailed regulation of individual dairy farms that is needed for either supply control or a cull cow incentive program. Problems with disposition of products would arise at the low point in the cycle, but they could be handled because Government stocks would not accumulate year after year.

Direct Payment Program: A direct payment program would be an application of target pricing. Payments would be made to producers when market prices fell below a stated target or support level. This kind of program separates income support from the price system.

Producer payments could be made on all milk or only on manufacturing milk. Payments could be made on all milk marketed by farmers or on some portion thereof based on quotas related to past production.

A payment program differs from a purchase program in several ways:

- Consumer prices are lower.
- There are no government stocks to dispose of.
- Costs are shifted partly from low-income to higher income consumers, because prices are lower and taxes are higher. The progressive income tax structure does the rest.
- There is no effect on efficiency or on the ease of making resource adjustments, as long as supports are at modest levels.
- With high supports, supply control is also needed to control Government costs.
- If imports cannot be controlled, a payment program is the only alternative because it lets dairy products sell at world prices.

Supply Control Program: If the basic objective is substantial income enhancement, some form of supply control is necessary to limit Government costs. Most forms of supply control use sales quotas, allocated to each producer as a percentage of historical production, with a penalty against milk sold above quota. The penalty would have to effectively reduce the value of over-quota milk below the additional cost to produce it. Otherwise, farmers would have an incentive to produce milk in excess of quota.

Quotas would immediately be worth money, giving windfall gains to the farmers holding the original quotas. The higher milk prices would be capitalized into the quotas. Production costs could be increased for new producers and existing farmers who bought additional quota. Both the value of the quota and its effectiveness in controlling supply would be affected by how easy it was for new or existing dairy farmers to acquire quota.

Compared to a purchase program, supply control has these different characteristics:

- Leaves consumer prices unchanged.
- Reduces Government costs.
- Requires detailed regulation of individual producers.
- Restricts ability to adjust resources.
- Results in capitalization of quotas.
- Has not been favored by producers in the past because of the loss of freedom.
- Without import regulation, supply control will only work in combination with direct payments.

Cull Cow Incentive Payment: An incentive payment to dairy producers to cull producing cows and send them to the meat market would reduce both the number of dairy cows and milk production in the short run. Similar programs have been used by European countries at various times. The availability of such an option on a standby basis would assist in lowering production at times like the present, but would drive beef prices down. It would have almost no effect on milk production in the long run. Such a program would be expensive and require detailed regulation of individual dairy farms in order to avoid making payments for cows which would be culled in any case.

Some Longer Run Issues

Basic policy questions to be addressed start with a re-examination of the need for and purpose of Federal dairy programs. A significant research effort will be needed to understand what the dairy economy would be like without price supports or milk marketing orders.

With the flexibility afforded by the Agricultural Marketing Agreement Act, the Federal order system has evolved in 40 years from a system treating individual markets separately to a unified system in which all markets are parts of a near national system. If it is to continue, major policy questions to be analyzed include the voluntary nature of Federal orders, coverage, price levels, price structures, and how detailed regulation should be.

The Federal order system developed as a voluntary enterprise. Producers in an area could decide whether or not they wished to come under a Federal order. This worked acceptably as long as markets were fairly well isolated, but the Nation east of the Rockies is now one system of interrelated markets, only some of which are Federally regulated. Pockets exist between Federal orders where producers enjoy the benefits of the existence of the orders without paying a part of the cost. So, the time is approaching for consideration of changing the voluntary nature of the program in order to achieve a truly national system of Federal orders.

If the decision is to achieve a national system of Federal orders with comprehensive coverage of all milk or at least all fluid grade milk, the choice between minimal regulation and more detailed regulation to ensure equality of treatment becomes simpler. With essentially all milk regulated and Federal order pools regional in scope, a substantial part of the detailed regulation now required to deal with out-of-order milk would no longer be required.

The Federal order price structure needs modification to bring it in line with today's supply-demand conditions. In making such changes, several policy decisions are required, including to what extent Federal order prices are to be minimums, with market prices expected to be above them a substantial part of the time. In the latter case, more frequent adjustments would be required in the Federal order price structure to reflect changing supply-demand conditions.

The choice between stability and income enhancement, which is so fundamental in the price support program, also enters Federal order decisionmaking on how much price discrimination, if any, is to be incorporated in the Class I price differential.

DAIRY PRICE POLICY:

- **Setting**
- **Problems**
- **Alternatives**

by

Alden C. Manchester

INTRODUCTION

Federal programs have been deeply imbedded in the economic fabric of the U.S. dairy industry for more than 40 years. In the course of those 40 years, the economic characteristics and performance of the industry have changed drastically and, in most respects, irreversibly. Further changes are inevitable. Yet, the basic structure of Federal dairy price policy and Federal dairy programs is largely unchanged, although there have been highly significant changes within Federal programs, especially the market order program, to adapt to changes in the dairy economy.

As on recurring occasions in the past, Federal outlays and stocks of dairy products are rising rapidly. With feed prices down from the high levels of 1973-75 and milk prices up somewhat, milk production is relatively profitable and production is rising faster than consumption. Commodity Credit Corporation (CCC) outlays for dairy products from October 1976 to September 1977 were $732 million, compared to $133 million in the preceding year. With no change in current programs, CCC costs will be large again in the current year and it will be several years before they return to modest levels.

The Food and Agriculture Act of 1977 set a minimum price support level of 80 percent of parity through September 1979. A midyear adjustment in supports is required through 1981. At the same time, outlets for disposition of dairy products acquired by CCC in price support operations are severely restricted, compared to periods of high production in the 1960's. So, CCC stocks are growing large.

This report examines causes and consequences of recent and possible future changes in the dairy industry and alternative Federal policies and their consequences.

AN OVERVIEW OF DAIRY POLICY

The Congress has established the dairy price support program and related Federal programs to deal with the level of milk prices and with problems of instability in milk prices and dairy farm incomes. This report is primarily concerned with these programs and problems and with alternative means of dealing with them.

Four closely interrelated Federal programs with different legislative histories are involved:

—The dairy price support program which explicitly puts a floor under the price of manufacturing grade milk and thus maintains a floor under all milk prices.

—The milk marketing order program which establishes minimum prices for fluid grade milk in most of the country.

—Import controls which protect the price support program and keep the U.S. Government from supporting world milk prices.

—Federal cooperative policy which encourages the development of farmer-owned cooperatives but says they may not use their market power to raise prices too high.

These programs set minimum prices to be paid to farmers and let the market operate above that level while attempting to provide the same minimum prices to all farmers and processors in similar groups and circumstances.

These dairy programs are designed to operate on the basis of market pricing with supports at minimal levels. The Government is to establish floors under prices but not at a level which will encourage farmers to produce large quantities of milk which consumers will not buy at the resulting prices. Experience has shown that, when the programs are operated in a way which subordinates this principle to others, problems develop as at present. Wide fluctuations in other parts of the economy can also cause problems. Other types of programs based on different principles, such as supply control or direct payments, are possible and are used in other countries. This report analyzes both types.

The basic policy choice is between (1) providing--as the present basic programs were designed to do--a measure of price stability to dairy producers and consumers by setting floors at minimal levels, and (2) supporting milk prices substantially above market-clearing levels in order to provide higher incomes to dairy farmers. If the choice is to provide stability, the present programs can be effective. If the choice is income-enhancement, other programs will have to be used to restrain production or encourage consumption or both.

This combination of types of policy is unique to the dairy industry. Marketing orders are in effect for many fruits, vegetables, and specialty crops, and there are price supports for basic crops. But fruit and vegetable marketing orders do not establish an institutional structure for pricing, as do milk marketing orders; their effects on prices are achieved through restraints on grade, size, and rate of flow. And price supports for crops are income-enhancement measures with the possibility of supply control as a major element.

THE U.S. DAIRY INDUSTRY IN PERSPECTIVE

The U.S. dairy industry has changed drastically at all levels in the past two decades, yet many of the major characteristics which government policy must deal with persist. These basic biological and economic facts include:

—The time lag in livestock production between planning (e.g., breeding a cow) and actual output ensures persistent cycles in cow numbers and milk production.

—Milk production fluctuates seasonally--generally expanding during the spring and early summer and contracting in the fall and winter--making it necessary to coordinate a varying supply with a fairly constant demand.

—It is somewhat more costly to produce and market milk for fluid products than it is for manufactured products. Production cost differences are now on the order of 20 to 25 cents per hundredweight on farms of comparable size. Marketing cost differences are fairly sizeable.

—Every step of the way, milk is handled under sanitary conditions to guard against bacterial contamination. Milk is moved quickly, for it is a highly perishable commodity that must either be marketed promptly as fuild milk or processed into manufactured products which can be stored. Sanitary requirements in production and marketing of fluid products impose higher costs than for milk strictly for use in manufactured products. This is one cause of the higher costs of producing and marketing milk for use in fluid products.

—Milk for fluid use can be stored only briefly, compared to manufactured milk products. Therefore, substantial reserves of fluid grade milk are required in order to meet fluctuating market demands. Supply and demand do not fluctuate together seasonally, weekly, or daily.

—Milk producers were and are relatively small and numerous. Milk distributors were and are much larger than individual producers and relatively few in number, although there were many more distributors than there are today. Milk producers nearly 100 years ago tried to organize for collective action in dealing with distributors. Unions, associations, cooperatives, and many other kinds of organizations were formed.

These were the conditions over 100 years ago when milk markets began to develop. These conditions still exist. The relative importance and the impacts have changed but not the basic facts.

Market Organization

As in almost all economic endeavors in the United States, the numbers of business units at every level of dairy production, processing, and distribution have declined drastically in the past 20 years (fig. 1). The number of commercial dairy farms is down by nearly two-thirds; farms with milk cows declined by nearly 90 percent. Fluid milk bottling plants dropped 78 percent and plants manufacturing dairy products are down by two-thirds. Grocery stores dropped by a third.

Both technological and economic forces were responsible for these changes. New technology all the way from the milking parlor to the retail store made bigger units possible at each level. Combined with rising wage rates, the technology

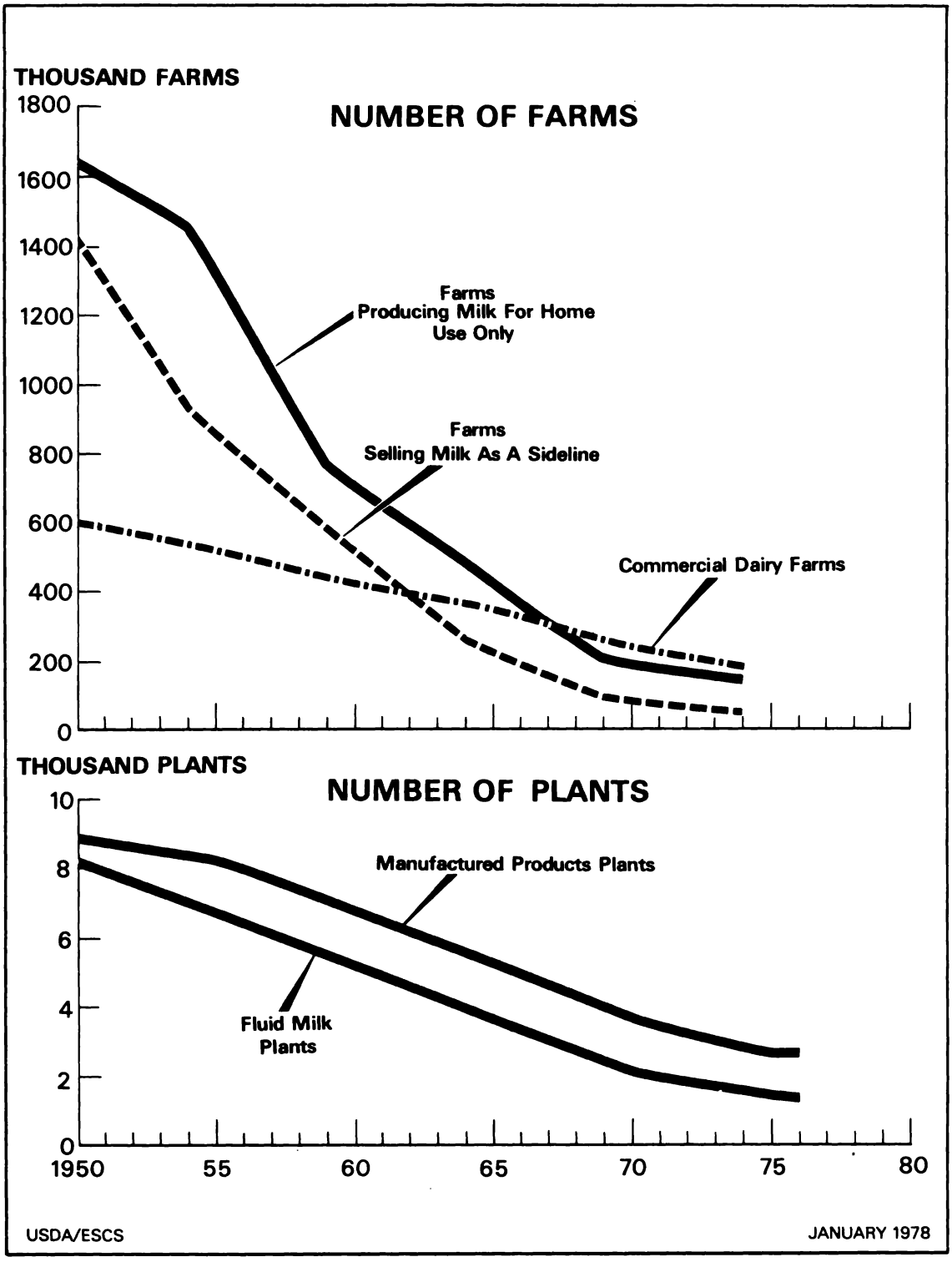

THOUSAND FARMS
NUMBER OF FARMS
1800
1600
1400
1200
1000
800
600
400
200
0
Farms
Producing Milk For Home
Use Only
Farms
Selling Milk As A Sideline
Commercial Dairy Farms
THOUSAND PLANTS
NUMBER OF PLANTS
10
8
6
4
2
0
Manufactured Products Plants
Fluid Milk
Plants
1950
55
60
65
70
75
80
USDA/ESCS
JANUARY 1978

Figure 1

changed the economies of scale in every enterprise so that the cost advantage shifted increasingly to larger and larger units.

The basic biology of milk production is unchanged, but increased understanding of it has made possible many modifications in production practices. Seasonality of production is less than it used to be, largely because economic incentives have been provided to persuade dairy farmers to modify production practices. Developments in genetics, animal nutrition, and labor-saving machinery have made possible much greater output per cow, per ton of feed, and per manhour.

Technological developments in milk processing made possible pushbutton plants where labor is largely replaced by machines which are controlled by computer. But these changes have drastically shifted the relative costs of large plants and small plants (economies of scale) so that the large plant of 30 years ago is too small to compete today.

Technological developments in processing, refrigeration, and transportation have destroyed the isolation of local milk markets which was once a fact of life.

While numbers of farms, processing plants, and retailers were dropping, and sizes of all units were increasing, the organization of markets was changing at some levels and not at others. Although larger, dairy farms remain family-operated units relying mostly on family labor with one or two hired laborers on the larger farms. Very large farms utilizing substantial work forces of hired laborers exist in southern Florida, Arizona, southern California, and Hawaii. Elsewhere in the country, they are scarce.

At the processing level, changes in organization vary from one part of the industry to another. In fluid milk processing and distribution, there was a strong merger movement from the end of World War II until the early sixties. National and regional milk companies bought hundreds of smaller local milk firms. The Federal Trade Commission (FTC) brought the merger movement by national fluid milk firms to a halt in the mid-sixties. The market share of national firms was 27 percent in 1964, dropped to 23 percent in 1970 and is a little less today. The FTC merger policy encouraged the "second tier" firms, and the share of regional firms doubled from 5 percent in 1964.

Cooperatives have taken up some of the share of the packaged fluid milk market, with their share increasing from 9 percent in 1964 to 13 to 15 percent today. But the most dramatic change has been in fluid milk plants operated by supermarket chains. They have built many new plants to serve their own stores and their share is up from 4.5 percent in 1964 to perhaps 15 percent today.

The nature of competition in the fluid milk processing and distribution industry has changed drastically in the past two decades. Increasing integration into fluid milk processing by major supermarket chains means that a significant portion of the market is foreclosed to other fluid milk processors. The near disappearance of the home delivery market for fluid milk where the distributor dealt with hundreds or thousands of individual consumers leaves the distributor to bargain with a much smaller number of retailers and eating places. Central buying of fluid milk by retailers who have not chosen to operate their own milk plants means that there are many fewer buyers, even among retail stores.

The role of cooperatives has undergone major change. In the thirties and forties, the typical situation was for fluid milk processors to perform all the marketing functions, starting with picking up the milk at the farm and ending with its delivery to the customer's doorstep. With sales about the same every day of the week, the major problem was seasonal balancing of supplies during the flush season.

Since then, many processors have entered into full supply arrangements with a cooperative because of the high cost of procuring and coordinating a fluctuating supply to meet a variable demand and the possibility of eliminating some uncertainty in this area. Under such a full supply arrangement, the cooperative undertakes to supply the exact needs of the processor for milk for fluid use and perhaps for ice cream and cottage cheese, and also to dispose of the surplus for other uses. Milk supply varies from day to day, depending on the vagaries of production by individual cows, weather, road conditions, and other uncontrollable factors. Demand likewise varies from day to day, partly on the basis of the day of the week, since more and more milk is being sold through supermarkets with a concentration of sales on weekends. Also, there is a strong element of random variation in both supply and demand from day to day. The larger the volume under the control of one agency, the more the random variations tend to offset one another, both within supply and demand and between the two.

A full supply arrangement does not adjust supply or eliminate fluctuations, but it does reduce their impact on the processor by giving him a relatively simple, routine means of adjusting supply to demand with minimum effort and expense. Furthermore, a single agency is in a better position to make necessary adjustments and reduce the burden of uncertainty.

These functions, formerly performed by processors, are largely performed by cooperatives today. Significant costs formerly borne by the processor are now borne by the cooperative and total costs are reduced. This has increased efficiency in milk marketing and, at the same time, cooperatives have grown and acquired increased market power.

By 1960, cooperatives had generally recognized the need for centralized management of milk supplies and disposition of surplus milk. For years, bargaining associations had struggled with ways of gaining control of their milk supplies to strengthen their marketing position.

Reduced market protection and a period of competitive intermarket movements of milk emphasized the need for increased coordination between cooperatives in multimarket areas. While maintaining their separate identities, cooperatives in the central part of the country marketing about a quarter of U.S. milk began to form federations in the early sixties in an attempt to raise producer incomes through higher prices and realize cost savings from better organized movement of milk supplies.

The large federated organizations served member cooperatives as a marketing agency in common, improved price alignment among markets, presented a united position at Federal order hearings, operated a standby pool for reserve milk supplies, expanded promotion of dairy products, and more effectively presented their views to legislative and executive branches.

By the midsixties, Federal milk order regulations began to reflect the increased need for more stable price alignment among markets. Individual market supply-demand adjusters were eliminated. The Minnesota-Wisconsin (M-W) price for manufacturing grade milk became the price for manufacturing use in all Federal orders and then the basic formula price used in determining the Class I prices in all orders. Federated cooperative structures hampered bargaining efforts and could not deal adequately with problems relating to operational efficiency, equity among producers, and greater market stability.

By 1970, many of the member cooperatives of the two major federated organizations had merged into four regional centralized full-service cooperatives, Associated Milk Producers, Inc., Mid-America Dairymen, Inc., Dairymen, Inc., and Milk, Inc. These four cooperatives now market about one-fourth of all U.S. milk. The 10 largest cooperatives handle about 36 percent.

Beginning in the late sixties, a number of small manufacturing cooperatives in Minnesota and Wisconsin joined the large regional cooperatives in that area. Among other things, members of the manufacturing cooperatives sought assured grade A milk markets, outlets to the growing cheese market, benefits from increased plant operating efficiency, and revolving of equity investments in obsolete facilities.

The organization of production and marketing of manufactured dairy products is very different from fluid milk products and there are major differences within the industry. Butter and nonfat dry milk have long been dominated by cooperatives which now produce over two-thirds of all butter and more than 85 percent of dry milk products.

Natural cheese production--long a bastion of relatively small proprietary firms--has seen a major growth by cooperatives which have more than doubled their share from 18 percent in the past 20 years.

Greatly increased diversity in cheese markets has increased the opportunities for cooperatives and other cheese manufacturers. While the processed cheese and cheese food market for supermarket distribution remains largely in the hands of two firms, the development of a widespread market for many varieties of cheese through wine and cheese shops and other similar outlets has opened many opportunities for other manufacturers. At the same time, the dramatic growth in sales of pizza and other pasta foods has expanded the market for Italian cheeses, primarily Mozzarella.

After the regional cooperatives were formed in the late 1960's, they consolidated manufacturing facilities, especially milk drying and cheese plants, to improve operational efficiency. In the West North Central Region, many small plants were closed and replaced by a few large, efficient plants. In response to market price fluctuations for cheese, the cooperatives converted butter-powder plants to cheese and expanded some existing cheese plants. As a result, regional cooperatives have a relatively large portion of the larger manufacturing plants.

The new capacity adds flexibility to plant operations. An estimated 15 percent of the current cheese capacity could be converted back to butter-powder production with minimum loss of time and expense. This flexibility increases the probability that products will continue to remain in closer price alignment than in recent years, when the value of milk going into cheese often exceeded its value for butter-powder. However, this flexibility of operations is concentrated primarily in the regional cooperative plants. The national cheese corporations, single-plant cooperatives, and private firms are less flexible.

Production

Much of the stability in the dairy industry which existed for over 20 years up until 1973 was provided by the large CCC stocks of feed grains which kept feed--the major cash expense of dairy farmers--relatively stable in price. When the excess grain stocks disappeared, a major source of stability in the livestock economy and the dairy industry no longer existed, as the escalation of feed prices in the early seventies demonstrated.

Feed prices increased over 80 percent from 1971 to 1974, with most of the increase in 1972-73. Federal dairy programs were not designed to provide complete stability in such a situation, although prices would have been even more unstable without them. They had provided a substantial measure of stability in the 20 years preceding when feed price changes were much more modest.

As long as milk-feed price relationships were fairly stable, feeding rates and milk output per cow increased year after year (fig. 2). The annual average increase was 246 pounds in 1955-65 and 279 pounds in 1966-72. Escalating feed prices caused cutbacks in feeding rates and production per cow actually decreased in 1973 and rose only modestly in 1974 and 1975. The rate of increase in output per cow jumped to a record of 529 pounds in 1976. It was lower in 1977 but still high (315 pounds).

The total number of milk cows on farms decreased throughout the postwar period, but the rate varied:

1955-60	706,000 fewer cows per year
1961-65	512,000
1966-70	591,000
1971-74	193,000
1975-77	79,000

The increase in production per cow was a result of improved breeding, disease control, better herd management, and heavier concentrate feeding.

Feed prices have declined modestly since reaching a peak in 1974. This has tended to encourage milk production and contributed to the present high level of Government purchases.

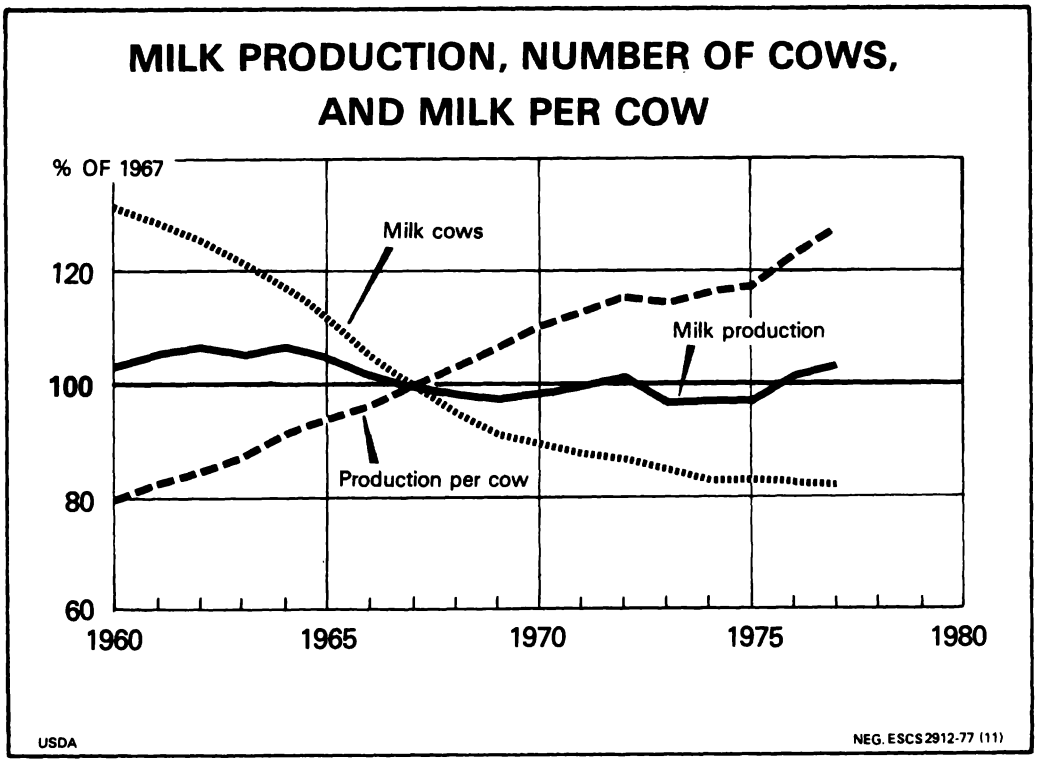


Figure 2

Also encouraging milk production has been the relatively low profitability of the beef enterprise since 1974, which has discouraged shifts of resources from dairy into beef production and slowed dairy cow culling rates.

Cow numbers declined less rapidly than numbers of farms, so the average herd size on farms with cows rose from 9 cows in 1954 to 21 in 1974 and on commercial dairy farms from 27 to 48 cows.

Nationally, milk production declined 2 percent from 1954 to 1976, but there were significant differences among regions. Production changed hardly at all in the Northeast and the Mountain States, declined about a third in the Corn Belt and Plains regions and 19 percent in the South Central region. The biggest increase was in the California-Arizona area, up 69 percent. The Minnesota-Wisconsin area was up 19 percent, the Pacific Northwest 9 percent, and the South Atlantic region 31 percent.

In the early days of commercial milk production, most milk was manufacturing grade. However, today only one-fifth of all milk does not meet the standards for fluid use, even though more than half is used in manufactured products.

Most manufacturing grade milk is produced in the Upper Midwest. About half comes from farms in Minnesota and Wisconsin, the other areas having converted to grade A in earlier times. But Minnesota and Wisconsin have been converting from manufacturing grade to fluid grade milk at a rapid rate in recent years. In 1976, 54 percent of Minnesota milk was manufacturing grade, down from 85 percent in 1965; 35 percent of Wisconsin milk was manufacturing grade, down from 58 percent in 1965.

A number of factors encouraged the conversion to grade A:

--Bulk tank assembly. Many plants receiving manufacturing grade milk are shifting from can to bulk tank assembly. In order to stay in the milk business, the producer must also convert. Once the bulk tank conversion has been made, the additional steps to grade A production are relatively minor.

--Stricter standards for manufacturing grade milk. As the standards for manufacturing grade milk come closer to those for grade A milk, it is easier to convert to grade A.

--Higher prices for grade A milk (see table 1).

--Plant efficiencies. Plant operators achieve lower costs by eliminating the duplicate systems necessary to segregate fluid grade and manufacturing grade milk.

--Pooling provisions of Federal orders in the area made it fairly easy to qualify as a pool plant.

--Increasingly, sanitary regulations require that ice cream and cottage cheese be produced from grade A milk or grade A milk products.

--There is a desire to improve the overall quality of the milk supply, especially since this can be done at little additional cost.

Consumption

Since 1956, per capita consumption of dairy products has dropped 22 percent, while population increased 30 percent. Total consumption rose 2 percent. But only a

Table 1--Average prices received by farmers for milk sold to plants and dealers, 1960-1977, difference between fluid grade and manufacturing grade

Date	Minnesota	Wisconsin
	Cents per cwt for 3.5 percent milk	
1960	54	48
1961	38	43
1962	47	49
1963	41	38
1964	37	38
1965	35	34
1966	40	30
1967	37	50
1968	41	56
1969	46	46
1970	47	40
1971	43	44
1972	44	33
1973	42	33
1974	58	59
1975	40	40
1976	69	47
1977	36	41

little more than a third of the decline in per capita consumption was due to a drop in sales to consumers, restaurants, and institutions (table 2). The rest was due to the near disappearance of the farm with one or two cows producing milk for home consumption and to smaller USDA donations. There are fewer farmers now and not many keep a cow or two to produce milk for use of their own families. So the contribution of milk consumed on farms where produced to total dairy product consumption is only 11 percent of what it was 20 years earlier.

USDA donations of butter, cheese, and nonfat dry milk to families, schools, and institutions varied, depending on the supplies acquired by the CCC under the price support program. Donations to families have been discontinued, replaced by the Food Stamp Program. The combination of smaller Government-held supplies and the elimination of one domestic outlet means that, in 1976, the contribution of donated dairy products to per capita consumption was more than 80 percent smaller than it was 20 years earlier.

Per capita sales of beverage milk have declined slowly but fairly steadily over the years, partly as a result of the substitution of other beverages--particularly soft drinks--and the decline in the proportion of children in the population (children consume much more milk than adults).

The long-time decline in butter consumption--due to competition from lower-priced margarine--leveled out in the seventies and that of frozen desserts has been fairly stable since the midsixties. Cheese consumption has more than doubled in 20 years.

But at the same time, we have had increased efficiency of utilization of the milk supply, primarily of solids-not-fat. In the midthirties, much of the milk was sold as farm-separated cream and half of the total solids-not-fat was fed to

Table 2 --Per capita consumption of dairy products

	1956	1966	1976
	Product pounds		
Sales:			
Beverage milk	290.7	274.7	255.9
Cream and specialties	8.8	7.0	8.1
Cheese	7.4	9.8	15.7
Cottage cheese	4.4	4.5	4.8
Frozen desserts	23.0	26.6	27.4
Butter	7.4	5.4	4.3
Evaporated and condensed milk	20.6	15.2	8.7
Dried milk and whey	5.3	6.6	6.4
Total sales	367.6	349.8	331.3
Consumed on farms where produced 1/	64.0	18.0	7.0
USDA donations 1/	1.8	0.9	0.4
All dairy products	433.4	368.7	338.7
	Percent of 1956		
All dairy products:			
Milk equivalent, fat solids	100	86	78
Milkfat	100	83	75
Total solids	100	88	83
Calcium content	100	96	93
Product pounds	100	85	78

1/ Contribution to average consumption per person.

animals or wasted. The figure is now down to 17 percent. This was due in large part to the growth of the nonfat dry milk industry in World War II continuing into the fifties and, more recently, to increased use of whey. Thus, any given level of milk production now yields substantially more human food than it used to.

The dairy problem is sometimes described as a problem of underconsumption rather than overproduction. But these figures show that 62 percent of the drop in per capita consumption between 1956 and 1976 was due to a decline in use on farms where produced and in donations and only 38 percent to a decline in sales. The big sales decline was in butter, because of the competition from margarine. This decline has nearly bottomed out. There was an even larger drop in evaporated and condensed products. These are mostly ingredients in other food products (including dairy products) and they have been under strong competitive pressure from whey, soy products, and caseinates.

Most of the impression of a dramatic decline in per capita consumption of dairy products results from looking at consumption rather than sales.

Per capita sales of all dairy products (milk equivalent) declined rapidly in the sixties and have now leveled out:

1955-60 ..... 2 pounds per capita per year decline
1961-65 5
1966-70 10
1971-75 ..... 0.4
1976-77 ..... 4 pounds increase per year

Nutritional Needs

Dairy products are the most important source of calcium in the American diet and provide significant amounts of other important nutrients, including protein and energy. The average American diet provides more of most nutrients than are needed. In 1976, the average diet had 50 percent more calories than needed, over twice as much protein, and 14 percent more calcium.

The most recent Household Food Consumption Survey (1965-66) found calcium the nutrient most likely to be consumed in inadequate amounts and protein the least likely.

Nutrient	Percent of households with available food falling below the recommended dietary allowances
Calcium	31
Ascorbic acid	25
Vitamin A	24
Iron	10
Thiamin	9
Riboflavin	6
Protein	5

Pricing in the Dairy Industry and Federal Programs

The Federal Government plays a major role in setting minimum prices for milk as it is sold by farmers or their cooperatives to processors. At wholesale and retail, the Federal Government plays no direct role in price determination, although some States set prices for fluid milk products. With these exceptions, wholesale and retail prices are determined by market forces.

Price Support Program

The support price undergirds the entire price structure for milk sold by farmers to processors. The support price is achieved through CCC offers to buy butter, nonfat dry milk, and cheese at prices designed to return the support price to the manufacturing grade producer, on average. The price support program thus directly provides a floor under the price of milk used to manufacture these products and, indirectly, supports the price of all milk.

Within the limits of the law, the Secretary of Agriculture is required to set a support price which will bring forth an adequate supply of milk to meet the needs of American consumers. In 1973, the objective was broadened to include the preservation of sufficient productive capacity to meet anticipated future needs. A fundamental consideration in deciding how much constitutes an adequate supply is the amount of surplus, if any, which the Federal Government has acquired as a result of the support program and, more important, what amount, if any, is likely to be acquired with prices at various levels.

The minimum support price for milk has been raised from the 75-percent level in the basic legislation to 80 percent by Congress three times. In September 1960, the

minimum support price was raised $0.16 per hundredweight to $3.22, which was 80 percent of parity as of April 1, 1960. In August 1973, the minimum was raised to 80 percent of parity through March 31, 1975. In September 1977, the minimum was raised to 80 percent through March 31, 1979. In 1957, 1975, and 1976, legislation raising the minimum level was passed but vetoed.

The support price for manufacturing grade milk was set at $9.00 per hundredweight, 82.3 percent of parity, on April 1, 1977. With the change in marketing year from April-March to October-September, the support price was again set at $9.00 (still 82.3 percent of parity) on October 1, 1977.

The Food and Agriculture Act of 1977 sets a minimum price support level of 80 percent of parity through March 31, 1979, dropping to 75 percent thereafter. The 1977 Act also requires, through March 31, 1981, adjustments in the support price to reflect any change in the parity index during the first six months of each marketing year. This will adjust the support price in the middle of the marketing year to reflect changes in the index of prices paid by farmers. Thus, minimum support prices will be increasing until October 1979.

Milk Marketing Orders

Federal milk marketing orders set minimum prices for fluid grade milk which must be paid by processors to dairy farmers or their cooperatives in markets where producers have elected to come under Federal orders. Minimum prices are established for milk for fluid use and for regulated fluid grade milk used in manufactured products. Currently, 81 percent of the Nation's milk supply is fluid grade and about 44 percent of all milk sold is used for fluid products. Federal order receipts represent about 65 percent of total milk marketings and over 80 percent of milk eligible for fluid use.

Minimum class prices are established for each of the 47 marketing orders on the basis of specified relationships to the price of manufacturing grade milk in Minnesota and Wisconsin, so they automatically reflect changes in support prices. With a few minor exceptions, prices for milk used in manufactured products (Classes II and III) are at or near the M-W price base. Minimum prices for milk for fluid use (Class I) are higher by fixed differentials. Market prices can be and often are above the Federal order minimums.

The prices paid to farmers for manufacturing grade milk are determined by market forces and are free to move above the support level if supply and demand conditions warrant. Minnesota and Wisconsin produce about half the manufacturing grade milk in the country. They do move above the support level in the short-supply season of most years and, at times, even in the flush season (fig. 3).

The structure of Federal order Class I prices starts from a base point in the Upper Midwest in the heart of the largest surplus production area (surplus with respect to fluid milk needs). From there, prices increase to more distant markets, partially reflecting transportation costs (fig. 4).

The differential between Class I and Class II (for convenience, we refer to the price for milk used in butter, powder, and cheese as Class II) prices in the Chicago Federal order--the approximate base point--has been constant since 1968.

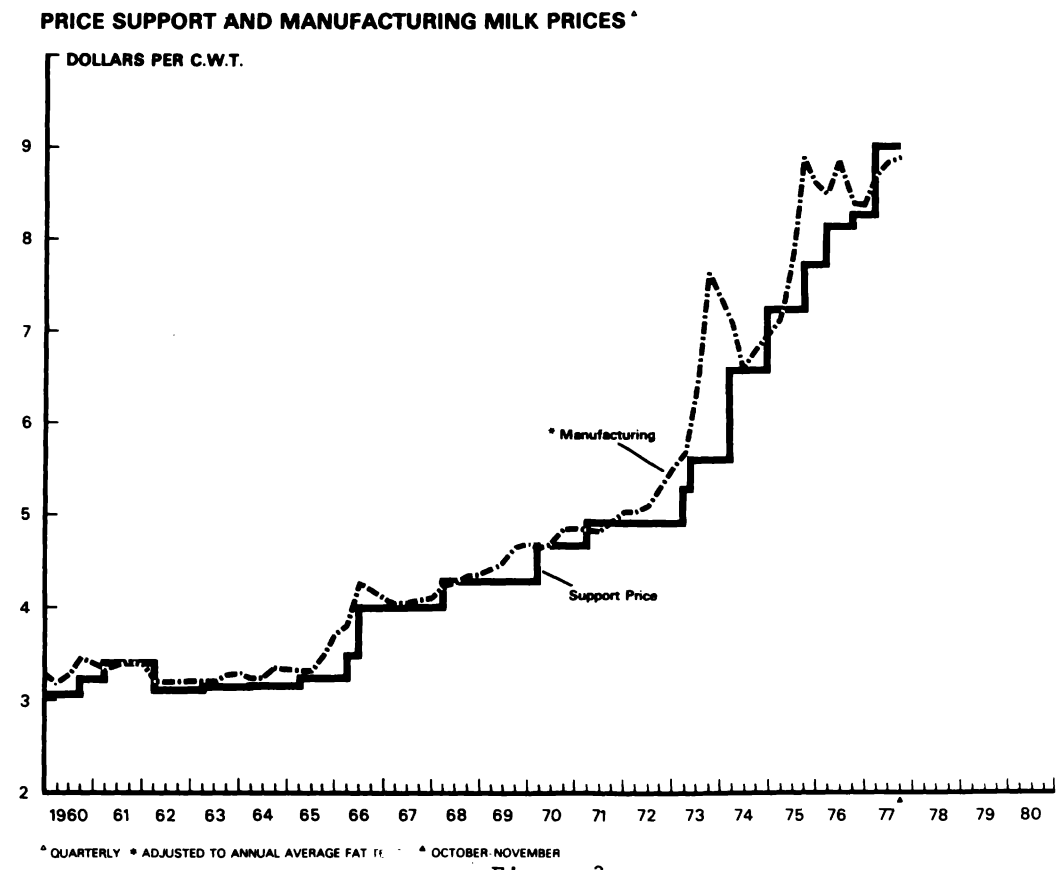


Figure 3

Class II prices are the same as the M-W price. Class II prices do not vary from one market to another across the country because the demand for manufactured dairy products is national and transportation costs for manufactured products are lower than for fluid milk. But Class I prices generally increase with the distance from the Upper Midwest. Therefore, the differential between prices for the different classes of milk would be substantial in many parts of the United States, even if the Class I differential in the base zone were zero. However, since Class I differentials have been constant and manufacturing milk prices rising, Class I differentials have been a declining proportion of Class I prices (table 3). The all-market average differential has declined from 33 percent of the average Class I price in 1968 to 20 percent in 1977.

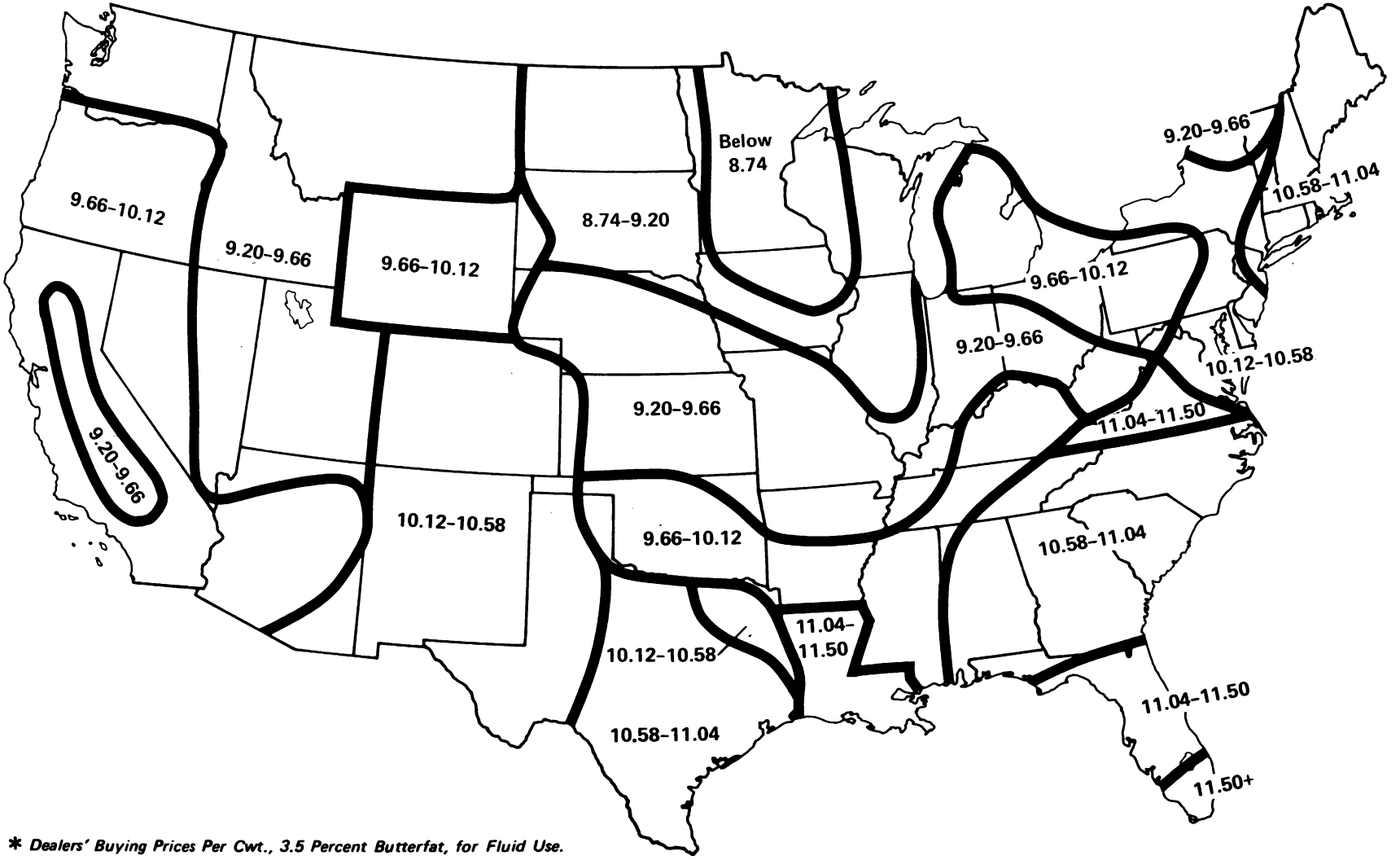
Federal orders provide for classified pricing--the prices paid by processors vary according to the products in which milk is used. The proceeds from all milk sales in each market are pooled and farmers receive a blend or average price. Thus, each farmer in a market shares the returns from higher priced and lower priced uses.

Federal orders do not determine or control the uses of milk--that is, the product forms in which it is eventually utilized. Rather, processors determine the uses based on known and anticipated orders from their customers for fluid milk products. Milk not used for fluid milk products (Class I) is utilized for manufactured products. The prices which processors must pay for milk going into different uses obviously influence the quantities used, but there are no quantity controls in Federal milk orders.

In earlier years, numerous barriers to movement of milk between areas were erected by sanitary regulations and product specifications of State and local health authorities and by other regulations. However, almost all of these have been

PRICE STRUCTURE FOR MILK*

1975 Equal Price Lines



* *Dealers' Buying Prices Per Cwt., 3.5 Percent Butterfat, for Fluid Use. Based on Prices in 125 City Markets.*

Figure 4

Table 3 --Class I differential as percent of Class I price

Year	All markets	Chicago	Southeastern Florida
		Percent	
1966	30.5	--	46.2
1967	31.6	--	44.7
1968	33.4	22.7	43.2
1969	32.5	21.4	41.3
1970	31.0	20.8	39.1
1971	30.4	20.8	39.6
1972	29.6	20.1	38.6
1973	26.2	17.5	34.8
1974	22.4	14.8	30.2
1975	22.4	14.8	30.3
1976	19.6	12.8	26.8
1977	19.8	12.9	27.1

removed by court and legislative action. Today, Federal orders do not restrict milk movements, although order prices obviously have some effect. Processors and cooperatives are the ones who control milk movements from farm to processor and from one area to another.

No Federal order limits the quantity of milk produced or marketed. However, Class I base plans in two markets (Puget Sound and Georgia) are designed to encourage producers to tailor their production to the fluid milk needs of the market. Such Class I base plans do not control production or volume marketed but rather influence the level of production through the manner in which Class I proceeds are distributed among farmers.

Authority for Class I base plans was added by legislation in 1965. The original authority provided for fairly restrictive base plans which would have had a considerable effect on discouraging entry by new producers. The Act was amended in 1970 to require that new producers be provided with relatively easy entry and present producers with increasing quotas, which effectively nullified the restrictive features of base plans. This is one major reason why only two milk markets have adopted Class I base plans.

Over the years, the focus of Federal milk orders has shifted. In the forties and fifties, milk markets were essentially local in character. Milk movements between markets were limited and markets were more isolated from the effect of the level of milk prices in other areas. Class I prices were considered primarily in terms of the appropiate level for a particular area, and intermarket price alignment was secondary. Various methods of establishing Class I prices were used, including stated Class I price formulas, the Midwest condensery price series, and economic formulas which immediately reflected changes in various economic factors, such as cost of feed, farm wage rates, and various consumer price indexes. During the

fifties, most orders contained local supply-demand adjusters which adjusted prices up or down on the basis of changes in local supply-demand relationships. Resulting prices varied considerably among markets because of the different pricing procedures used and the effect of local supply-demand adjusters.

As milk keeping quality improved and milk refrigeration and transport facilities and roads improved, markets became less local in character and milk increasingly moved between markets. It became evident in the early sixties that a more closely coordinated system of Class I prices was needed in which changes in national supply-demand conditions would be reflected simultaneously in all Class I prices. Also, it was necessary to give more weight to the cost at which milk supplies were available from sources outside a market's traditional milkshed.

In view of these developments, the Minnesota-Wisconsin (M-W) price was adopted in the sixties as the basic mover of all Class I prices and local supply-demand adjusters were phased out. The M-W series was selected because (1) it was the best indicator of changes in the overall supply-demand situation; (2) it was a measure (when appropriate differentials were added) of the cost of alternative supplies from the Upper Midwest; and (3) it provided a means of coordinating changes in Federal order class prices with changes in price levels under the dairy price support program.

Thus, the character of prices established under Federal orders became quite different. They were no longer subject to frequent change on the basis of changes in supply-demand conditions in individual markets. Instead they became a coordinated system of prices for the various markets wherein the major factor moving prices up or down was change in the national supply-demand situation and the price support level. The implications of this change were far reaching in terms of the character of Class I prices in milk orders. Changes in individual order prices would be made only in the context of a system of prices for all markets. This meant less opportunity to change individual order prices or prices for a group of markets in response to changes in local or regional supply-demand conditions. It also meant more reliance upon national hearings.

Import Regulation

The present price support program maintains prices of dairy products above world market levels. Import controls are necessary to prevent flooding the U.S. market with foreign dairy products. Import regulations on dairy products can be divided into two major categories--quotas and countervailing duties.

Import quotas are authorized under Section 22 of the Agricultural Adjustment Act of 1933, although they were first imposed in 1951 under emergency legislation. Under current law, Section 22 quotas may be imposed, adjusted, or eliminated only by the President, based ordinarily on the findings and recommendations of the International Trade Commission (ITC). A permanent increase in a quota, for example, could only come if the President were convinced, as indicated by the ITC investigation, that such an increase would not materially interfere with the price support program for milk.

Section 303 of the Tariff Act of 1930 directs the Secretary of the Treasury to impose countervailing duties against an import article when bounties or grants are being paid, directly or indirectly, upon its production or exportation. Under later legislation, waivers can be granted until January 4, 1979, (1) if affected countries agree to reduce substantially or eliminate the adverse effects of the bounties or grants; (2) if imposing countervailing duties would impair possible trade negotiations between the United States and these countries; and (3) if the Secretary believes there is hope of making gains in the multilateral trade negotiations.

Under these regulations, imports of dairy products have been held to modest levels in most recent years. In 1960, imports were 0.5 percent of U.S. production, rising to 0.75 percent in 1965. There was a sharp jump in 1966 and 1967, with greatly increased imports of butterfat mixtures. Imports in those years were 2.3 to 2.5 percent of production. The definition which permitted importing butterfat-sugar mixtures as "ice cream," a nonquota product, was changed and imports then held at about 1.5 percent of U.S. production to 1972. Substantially increased imports were permitted in 1973 and 1974, in response to sharply increasing milk prices in a period of rapid general inflation. These import actions helped to hold down dairy prices, but some were badly timed and contributed to the wide fluctuations in manufacturing milk prices in those years.

Since that time, imports have returned to the previous level of 1.5 to 1.6 percent of U.S. production. About half of the quantity and two-thirds of the value of imports is not under quota. Imports of butter, cheese, nonfat dry milk, and American-type cheese compete very directly with those products made in the United States and displace them essentially pound-for-pound. More exotic cheeses which are not made in the United States compete less directly with domestic products. If imports of such cheese were restricted by putting them under quota or by other means, sales of other domestic cheeses likely would not increase by the same amount...perhaps not at all. The extent to which casein replaces domestic dairy products is more problematical. In some food products such as ice cream, it is very close to pound-for-pound substitution. In other uses, particularly nonfood products, closing off casein imports might not increase the demand for U.S. dairy products.

Cooperative Policy

Federal policy fosters the growth of cooperatives, to redress the imbalance of market power between farmers and those who buy from them. But limits are put on the exercise of cooperative power.

The Capper-Volstead Act permits farmers to act together in marketing without running afoul of the antitrust laws. But, it is not a blanket exemption from such laws. Once farmers have joined together in a cooperative, they are subject to the remaining antitrust and fair trade laws just as any other firm. The exemption does, however, permit the formation of a cooperative with an element of a monopoly in the marketing of a particular commodity for a particular market. Section 2 of the Act provides safeguards to prevent abuse of the monopoly power.

If the Secretary of Agriculture has reason to believe that a cooperative monopolizes or restrains trade so the price of any agricultural product is unduly enhanced, he is to serve a complaint on the cooperative requiring it to show cause why it should not be directed to cease and desist from monopolization or restraint of trade. The Secretary can take action only against the monopolization or restraint of trade activity. He is not authorized to establish a reasonable price nor to order the cooperative to reduce its prices.

Relationships of Programs

The milk order program, price support program, and cooperative bargaining have become more closely interrelated in recent years.

In the absence of a support program, neither milk orders nor classified pricing could generate a surplus as the lowest class price must be a market-clearing price. But milk orders operate in combination with the price support program. The manner in

which the programs operate, however, puts primary responsibility on price support levels for adjusting price levels as the result of Government action. In addition, milk orders depend upon market forces through the M-W price to adjust Class I and other prices.

The level of Class I prices affects blend prices which in turn influence the amount of milk produced. The level of Class I prices also has an impact on milk consumption, with significant effects on the overall supply-demand balance and the volume of price support removals. In turn, changes in price support levels affect the production-consumption balance in Federal order markets.

Milk order Class I prices are based upon the M-W price series which, in turn, is influenced by the level of price support. When market prices are at support levels, changes in the support level are directly reflected in the M-W price and in Class I prices. Use of the M-W price as the mover of Class I prices in all Federal order markets provides coordination between the milk order and price support programs, assuring that minimum Class I prices will not keep rising at a time that increasing purchases might require a reduction in the support level.

The main means of changing Class I prices is through changes in the price support level or, when markets are above support levels, through market forces reflected in the price paid for manufacturing grade milk.

Class I prices established under milk orders are minimum prices and cooperatives can and do negotiate higher prices. The level of over-order charges negotiated is influenced by supply-demand conditions, the market power of the cooperative, and services provided by the cooperative. Over-order charges provide a further means of adjustment of effective Class I prices.

Because of the interrelatedness of milk order and price support programs, it has been increasingly necessary to look upon the combined effects of milk orders, price support levels, and cooperative bargaining in appraising the appropriateness of the entire price structure. When supply and demand are in reasonably good balance, the combined effect of the programs is creating prices which are consistent with long-run equilibrium.

If price support removals are excessive, questions may be raised as to the appropriateness of both price support levels and the level of Class I prices, although in this situation the price support level is most critical, since reducing the price support level would also lower Class I prices. Nevertheless, it is appropriate to question the overall level of Class I prices and particularly the size of the Class I differential when price support removals are large.

If, on the other hand, supplies are short and market prices increase sharply, or if milk prices are low relative to input costs, questions can be raised as to whether it might not be desirable to increase price support levels or possibly Class I differentials, particularly if over-order payments have increased sharply. In this situation, it is unlikely that upward adjustment in Class I differentials would be needed since market forces would be expected to result in increases in the M-W price and in Class I prices.

Both the milk order program and cooperative bargaining for over-order payments provide a means of getting additional dollars into the hands of dairy farmers, complementing the price support program. This reduces somewhat the reliance that must be placed on price supports in generating milk prices high enough to achieve adequate supplies. Likewise, in times of surplus, the additional dollars generated

by milk orders and cooperative bargaining and received by dairy farmers may aggravate the supply-demand balance if prices resulting from milk orders or cooperative bargaining in combination with price support levels call forth unneeded milk supplies.

Performance of the Dairy Industry

The U.S. dairy industry--as affected by the price support program, import controls, Government policy toward cooperatives, and the Federal order program--has provided an adequate supply of milk at prices which have been acceptable to both producers and consumers much of the time. At times, more-than-adequate supplies have been forthcoming, as at present, and occasionally shortages and escalating prices.

The costs of instability include the substantial stresses in adjusting to changing conditions, as was demonstrated by consumer complaints about food prices in 1973 and 1974 and the farmers' strike in 1977. Adjustment costs are both psychic and economic.

There are other costs of instability. If prices and incomes in any line of business including dairy farming vary widely from year to year, that line of business becomes less attractive to some who are thinking about entering it. Average profit rates must be higher to compensate for the year-to-year variability. This means that, in the long run, prices will be higher. If the existing institutions which provide considerable stability in milk prices on the downside were to be removed, the boom-and-bust cycle which characterized dairy farming before these institutions were invented would reappear. Given the very large investments now required to enter dairy farming, there is a very good question as to whether production would ever return to a level which would yield prices comparable to those we now have. It is not impossible that the cycle would operate around a sharply declining trend in output as dairy farmers went bankrupt when prices were low and were not replaced as prices rose. Alternatively, production might recover but only under very different arrangements, such as contract production in broilers.

Farm Prices

Prices of manufacturing grade milk in the heart of the dairy country, as measured by the M-W price, have been above the support level on an annual average throughout the past decade (table 4), although the M-W price was below the support level between April and November 1977. Federal order Class I prices are higher than the M-W price by fixed differentials averaging about $2.10 since 1969, but on a lagged basis, so the figures in table 4 vary a bit when prices are changing rapidly. Dealers' average Class I buying prices have exceeded minimum prices only by modest amounts (16 to 33 cents per hundredweight) except in 1974-75 when Federal order Class I prices dropped sharply and over-order payments increased substantially in most markets.

Compared to other price levels in the economy, farm prices of milk have generally risen less rapidly than the prices of all farm products and the implicit price deflator for gross national product, a measure of inflation in the entire economy (fig. 5).

Price Support Operations

Since 1949, the support price has been set at times at the maximum level, at times at the minimum permissible level, and at other times at various levels in between

Table 4--Selected milk price series

Year	Support price for milk	Manufacturing milk in Minnesota and Wisconsin	All market Federal order minimum Class I price	Dealers' average buying price for milk used in Class I products
		Dollars		
1966	3.51	3.92	5.55	5.83
1967	3.84	3.99	5.85	6.18
1968	4.05	4.17	6.23	6.49
1969	4.13	4.42	6.50	6.78
1970	4.40	4.66	6.74	6.94
1971	4.71	4.81	6.90	7.12
1972	4.79	5.08	7.10	7.26
1973	5.20	6.30	8.03	8.29
1974	6.20	7.06	9.35	10.01
1975	7.21	7.62	9.36	9.96
1976	7.88	8.48	10.70	11.00
1977	8.82	8.58	10.59	10.90

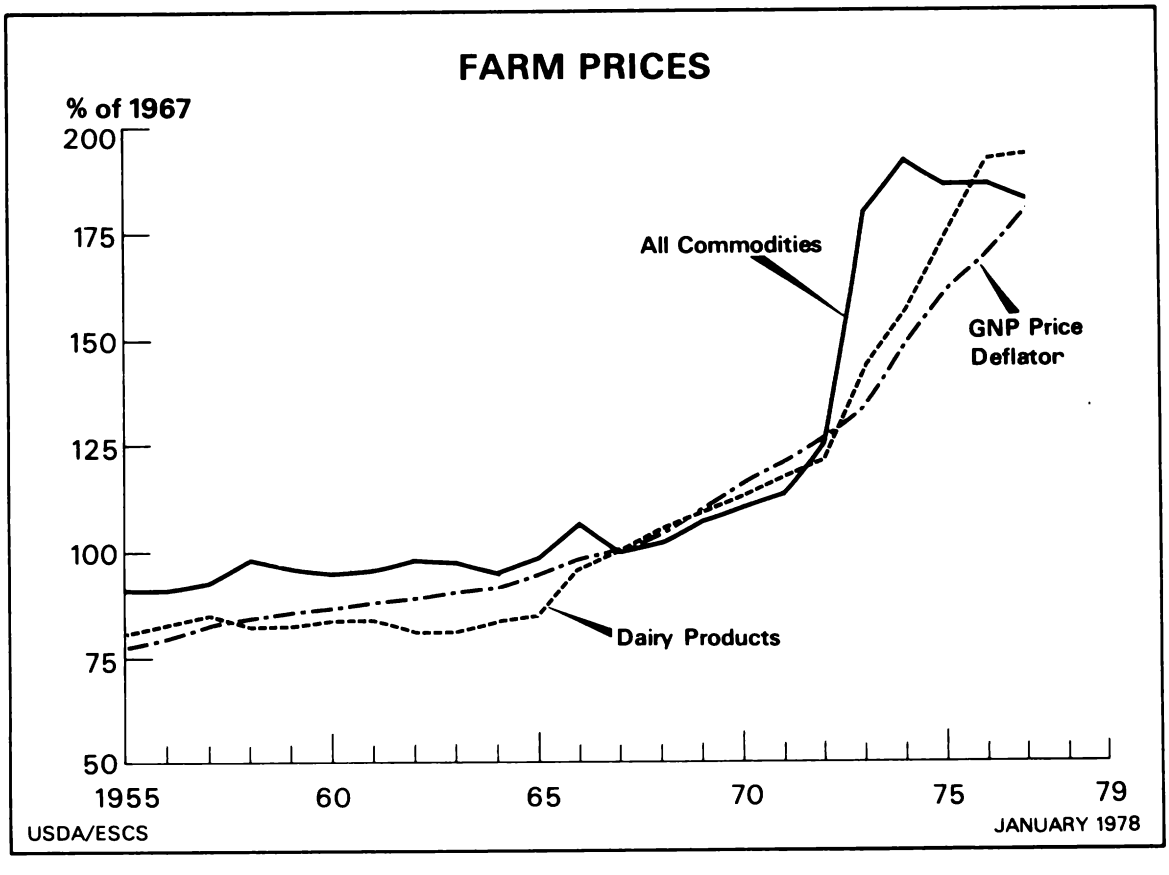


Figure 5

(table 5). When the support price was set at 80 percent of parity or more, Government purchases and program costs increased within 1 to 2 years and the prices could not be sustained at those levels without large CCC purchases (table 6 and figs. 6 and 7). In 1954 and 1962, for example, because of the very large surpluses of dairy products, it was necessary to reduce the support price to the legal minimum of 75 percent of parity until Government purchases declined and inventories were worked off.

Thus, it appears that the longer run supply-demand level of milk prices was near 75 percent of parity in this period of relatively stable feed prices from 1953 to 1973.

The price support program has kept prices more stable than they otherwise would have been. Producers and resources were kept in dairy production as market prices were prevented from dropping to very low levels. Also, market prices were prevented from rising even more than they did whenever changed market conditions made it possible for the Government to sell dairy products back to industry at prices usually 10 percent above purchase prices.

The best example is the CCC sales of dairy products back to the trade in 1950 and 1951, when 140 million pounds of butter, purchased under the program in 1949, were sold. Other CCC sales in significant quantities were made in 1964, 1965, 1972, and 1975. In all, since 1949, such sales totaled 282 million pounds of butter, 97 million pounds of cheese, and 224 million pounds of nonfat dry milk.

The program has been carried out through purchases of butter, nonfat dry milk, and American cheese. These dairy products are most widely produced throughout the United States and represent about two-thirds of the milk used in manufactured dairy products. CCC stands ready to buy these products in bulk (butter in 60- to 68-pound containers, nonfat dry milk in 50-pound bags, and cheese in 40-pound blocks or 500-pound barrels) at prices designed to result in a U.S. average price for manufacturing milk equal to the support price. Recognizing that prices received by individual producers depend upon such factors as plant location, the products manufactured, the quality of the milk delivered, the local competitive situation, and the operating efficiency of the plant, the purchase program supports only the average price received by milk producers and not the price received by each producer.

To attain the desired level of prices for manufacturing milk, when product prices are at the support level, CCC purchase prices must include reasonable allowances or margins for the cost of processing milk into butter/nonfat dry milk and cheese. The difference between prices paid to farmers for manufacturing milk and the market value of the products made from the milk is a measure of the actual manufacturing margin. CCC manufacturing margins are adjusted from time to time to reflect changes in manufacturing costs. With rapid increases in costs in recent years, CCC's margins have increased correspondingly. Between April 1975 and October 1976, CCC's margins for butter/nonfat dry milk increased from $0.77 per hundredweight to $1.02 (32 percent) and cheese from $0.92 to $1.17 (27 percent).

However, even if the manufacturing margins reflect average costs, problems still may exist in assuring that the average manufacturing milk price is equal to the announced support price. Such a problem existed from April through November 1977 after the support price was increased by $0.76 per hundredweight to $9.00. Although manufacturing milk prices averaged 12 cents over support during October 1976-March 1977 when market prices for all three dairy products were at CCC's purchase prices, beginning in April 1977, prices paid for manufacturing milk did not reflect all of the increase. The deficit ranged from 28 cents per hundredweight in April to 6 cents in November.

Table 5--Manufacturing milk: Comparisons of announced support prices and U.S. average market prices paid to producers, marketing years, 1949-77

Marketing year beginning April 1	Date effective 1/	Manufacturing milk				
		Support level		Average market level		
		Percentage of parity equivalent 2/	Price per 100 pounds	Price per 100 pounds	As a percentage of parity equivalent: In month prior to marketing year	As a percentage of parity equivalent: Average during marketing year
		Percent	Dollars	Dollars	Percent	Percent
1949 3/		90	3.14	3.14	90	89
1950 4/		81	3.07	3.35	88	85
1951		86	3.60	3.97	94	93
1952		90	3.85	4.00	93	95
1953		89	3.74	3.46	83	84
1954		75	3.15	3.15	75	80
1955		80	3.15	3.19	81	82
1956		82	3.15			
	4/18/56	84	3.25	3.31	86	84
1957		82	3.25	3.28	83	82
1958		75	3.06	3.16	77	77
1959		77	3.06	3.22	81	81
1960		76	3.06			
	9/17/60	80	3.22			
	3/10/61	85	3.40	3.31	83	83
1961		83	3.40	3.38	83	82
1962 5/		75	3.11	3.19	76	76
1963		75	3.14	3.24	77	77
1964		75	3.15	3.30	77	78
1965		75	3.24	3.45	80	79
1966		78	3.50			
	6/30/66	89.5	4.00	4.11	92	90
1967		87	4.00	4.07	88	87
1968		89.4	4.28	4.30	90	87
1969		83	4.28	4.55	88	86
1970		85	4.66	4.76	87	85
1971		85	4.93	4.91	85	82
1972		79	4.93	5.22	84	80
1973	3/15/73	75	5.29			
	8/10/73	80	5.61	6.95	99	91
1974		81	6.57			
	1/ 4/75	89	7.24	6.87	85	78
1975		79	7.24			
	10/ 2/75	84	7.71	8.12	89	84
1976		80	8.13			
	10/ 1/76	81	8.26	8.52	84	82
1977 6/		82	9.00	8/8.78	80	80
1977 7/	10/ 1/77	82	9.00			

1/ If other than April 1. 2/ Except as noted, this is the actual percentage of the parity equivalent price published in March before the marketing year. In some cases the announced percentages, based on forward estimates of parity, were slightly different. 3/ Calendar year. 4/ January 1, 1950-March 31, 1951. 5/ Beginning November 1962, parity equivalent is based on prices for all manufacturing grade milk instead of the "3-product" price for American cheese, evaporated milk, and the butter-nonfat dry milk combination used before. 6/ April-September transition period. 7/ October 1. 8/ Adjusted to the annual average fat test.

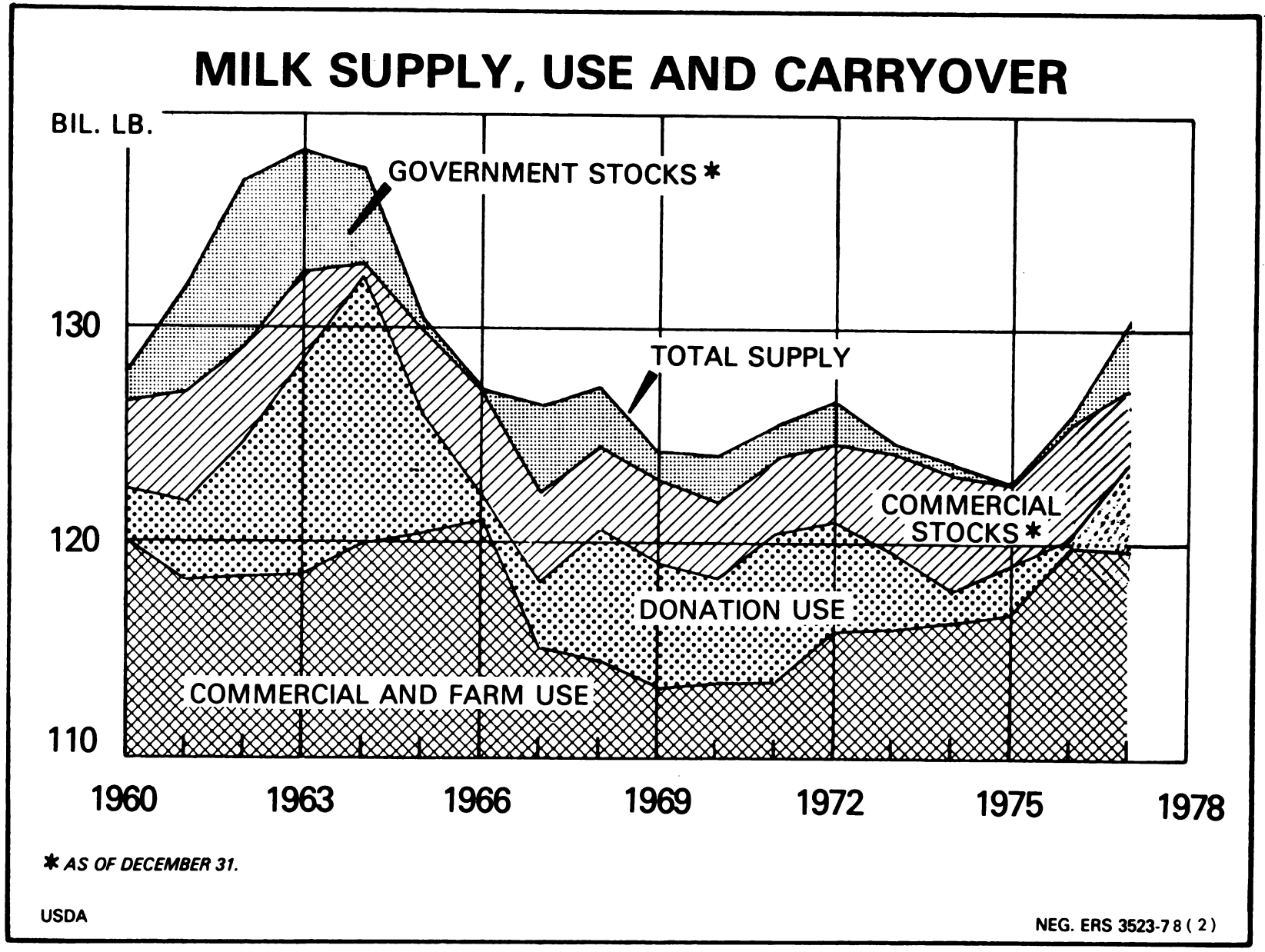

MILK SUPPLY, USE AND CARRYOVER
BIL. LB.
GOVERNMENT STOCKS *
TOTAL SUPPLY
COMMERCIAL STOCKS *
DONATION USE
COMMERCIAL AND FARM USE
130
120
110
1960
1963
1966
1969
1972
1975
1978
* AS OF DECEMBER 31.
USDA
NEG. ERS 3523-78 (2)

Figure 6

Table 6 --CCC removals, 1953-1973

CCC removals as percent of marketings (milk equivalent)	Support level as percent of parity, two-year average	
	75-79 percent	80-90 percent
	Percent of years	
0-1.9 percent	12	--
2-3.9	50	23
4-5.9	12	31
6-7.9	25	31
8-9.9	--	8
10-10.9	--	8
	Number of years	
Total	8	13
Average CCC removals	3.8 percent	5.8 percent

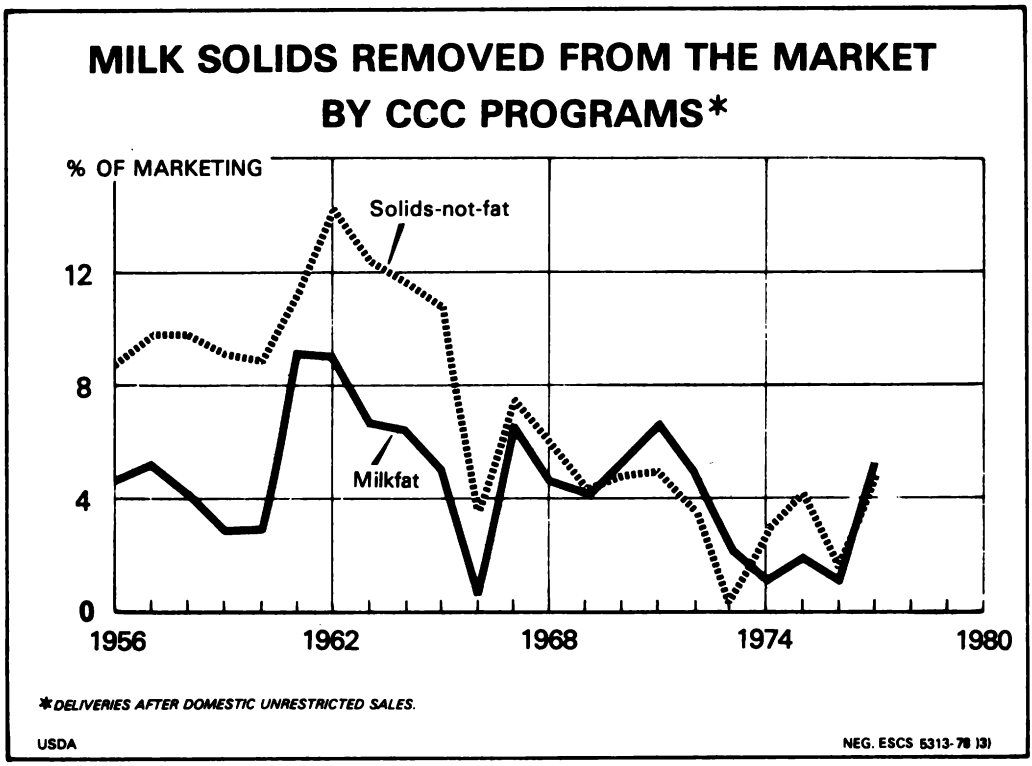


Figure 7

The apparent reason for this discrepancy is that, with the heavy supplies of milk during the flush production period, there was little active competition for milk. When production subsided seasonally and market prices of dairy products rose, prices gradually rose until they nearly reached the support level in December.

Effective operation of a purchase program requires that adequate outlets be available for acquired products to prevent accumulation of excessive CCC stocks. If the acquired dairy products are used constructively and CCC's inventories kept down, purchases and costs which might otherwise be considered excessive can be tolerated. This was generally the situation until the most recent period of price support purchases which began in 1974.

The opportunities to donate commodities to low-income people domestically practically disappeared as the Food Stamp Program replaced the Direct Distribution Program. This leaves the School Lunch Program as the only remaining sizeable domestic outlet. Donations for foreign feeding programs are now severely limited by budget restrictions on foreign aid.

The problem of insufficient outlets for CCC-owned dairy products is illustrated by the supply and utilization of dairy products in 1976-77:

	Butter	Cheese	Nonfat dry milk
		Million pounds	
CCC purchases (contracts)	249	174	494
Beginning CCC inventory	-	-	401
Total supply	249	174	895
Sales:			
Unrestricted use	-	-	52
Feed	-	-	5
Noncommercial export	-	-	1
Donations:			
Domestic school lunch and welfare	78	100	34
Military and VA	7	1	-
Bureau of Prisons	1	1	1
Foreign	-	-	168
Total dispositions	86	102	261
Ending CCC inventory	162	70	634

This contrasts with the removals (purchases and payment-in-kind exports) and dispositions in 1964-65 when price support removals and dispositions were substantially larger (but not the largest on record):

	Butter	Cheese	Nonfat dry milk
		Million pounds	
CCC payment-in-kind exports	115	-	463
CCC purchases	209	145	727
Total market removals	325	145	1,190
Beginning uncommitted inventory	133	5	248
Total CCC purchases plus inventory	343	150	975
Utilization:			
Commercial sales:			
Domestic unrestricted	36	-	-
Domestic restricted	-	-	13
Export	40	4	24
Gov't.-to-gov't. sales	-	2	164
Sales to Army	16	-	-
Donations:			
Domestic school lunch and welfare	161	44	128
Military and VA	27	5	-
Foreign	6	91	465
Total dispositions	287	146	793
Ending uncommitted inventory	54	5	182

A large portion of the market removals of butter and nonfat dry milk in 1964-65 was accomplished through payments-in-kind on exports from private stocks (i.e., payments to exporters in certificates redeemable in CCC-owned grain, at a rate approximately equal to the difference between the domestic market price and a competitive world market price). This program ended in 1966, removing a major outlet for U.S. dairy products. There were also sales from CCC stocks to commercial exporters and foreign governments at reduced (subsidized) prices. Now, the United States is opposed to export subsidies by other countries since they interfere with free international trade. Elimination of export subsidies would provide greater access in export markets for U.S. grains. Domestic and foreign donations were not inhibited by restricted outlets or budgetary considerations during earlier periods of large surpluses and, therefore, the support program was able to operate effectively in spite of the large quantities of surplus products CCC was required to purchase.

A large part of the dispositions in 1964-65 was to export outlets. For nonfat dry milk, 89 percent of the total dispositions were exported. Such exports were made possible either by payments-in-kind (41 percent), CCC sales at reduced (competitive world) prices (17 percent), or donations for foreign feeding programs (42 percent).

Producer Returns

There are no comprehensive statistics on incomes of dairy farmers. Therefore, we have used figures from farm account records compiled by the Extension Services in New York and Wisconsin. The Wisconsin figures represent better-than-average commercial dairy farms in the concentrated production area in the Upper Midwest. The New York figures represent the Northeast and, to some extent, other areas dependent on purchased feed concentrate supplies.

Dairy farm returns are measured here in terms of returns to operator and family labor, management, and equity in investment. This is the total return from the farm to the dairy farmer before income taxes and is available for family living, investment, or other purposes, along with any nonfarm income. These figures are the most comparable to family income in other segments of the economy, although they are far from perfect measures.

In 1976, returns on New York dairy farms ranged from $10,000 on farms with 31 cows to $64,000 on farms with 200 cows (fig. 8). Wisconsin dairy farmer returns ranged from $7,200 on farms with 24 cows to $49,000 on farms with 142 cows. Investment on these farms ranged from $130,000 to $635,000 in New York and from $80,000 to $414,000 in Wisconsin.

Dairy farms with herds of approximately 40 cows were selected for closer analysis. This group includes the average size of herd on commercial dairy farms in most areas of the country. In the sixties, dairy farmer returns trended upward at a fairly steady pace in both States (fig. 9). The New York returns were somewhat higher because the farms in this group averaged a bit larger. In the seventies, returns were much more variable, because of large fluctuations in feed and milk prices. In 1974, New York returns dropped sharply while those for Wisconsin farms increased, because New York farms purchased most of their grain and other concentrates and Wisconsin farms were sellers of corn.

As indicated earlier, dairy farms have been getting larger over time. The figures above are for farms of a constant size. Therefore, we have constructed a rough average return which allows for the average increase in herd size on farms with 20 or more cows. Compared to earnings in the rest of the economy, they are somewhat above average family income before income taxes (which includes returns on investment). These figures for dairy farm income do not include income from non-farm sources such as off-farm earnings mainly of other members of the family. Such earnings contributed an average $2,400 per farm on commercial dairy farms in the United States in 1974.

These figures on producer returns suggest that, for this group of average-sized commercial dairy farms in two principal dairy States, returns <u>from the farm</u> are comparable to those of other groups in the economy on the average. The investment of these dairy farmers is almost certainly substantially larger than the average for all families. On the other hand, these dairy farm returns omit off-farm income and capital gains from the increase in value of farm real estate. Capital gains would be roughly in proportion to investment, larger for dairy farms than for the all-family average.

If the policy goal is equality of income with the nonfarm economy, it would appear that supports at 75 percent of parity can achieve that goal.

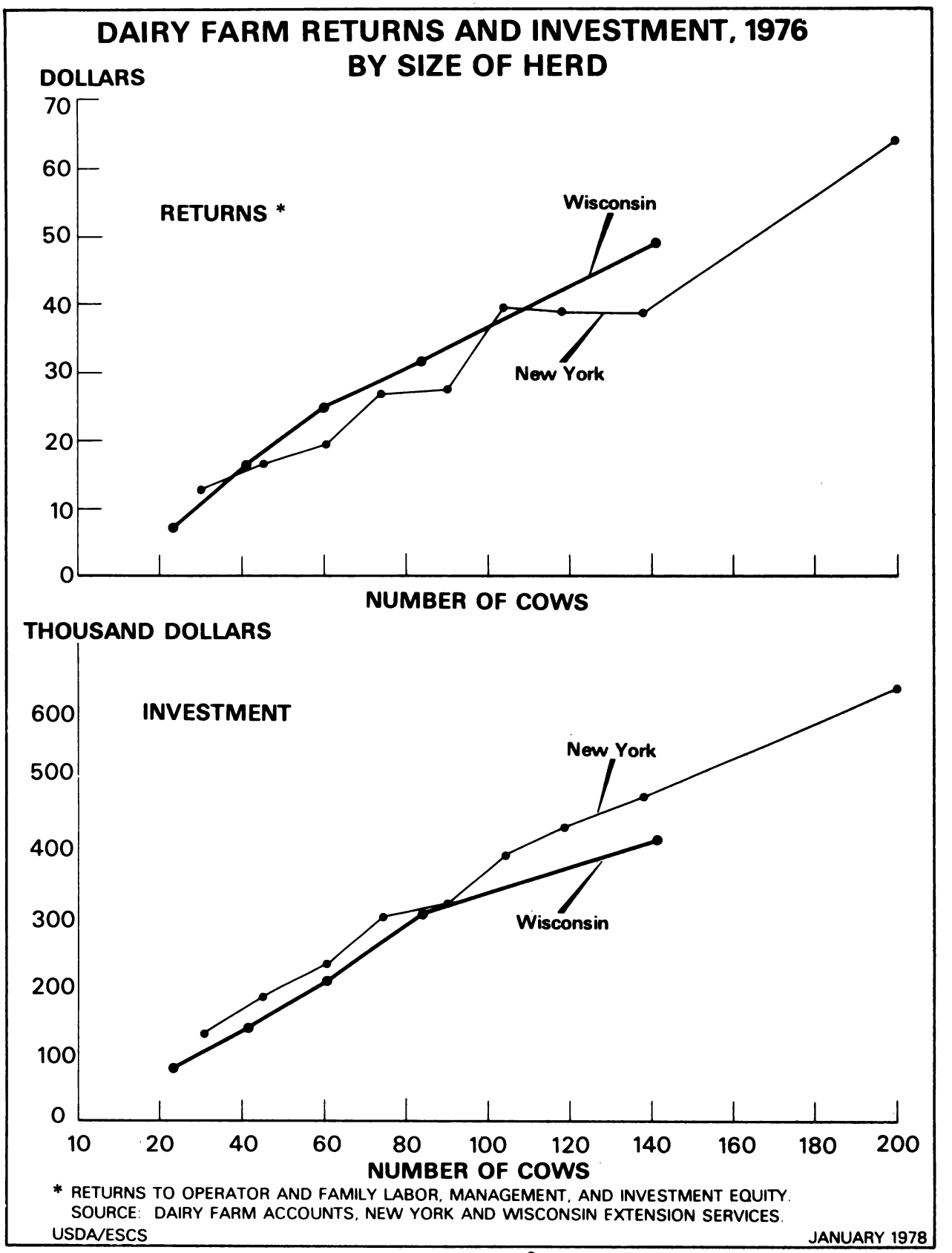
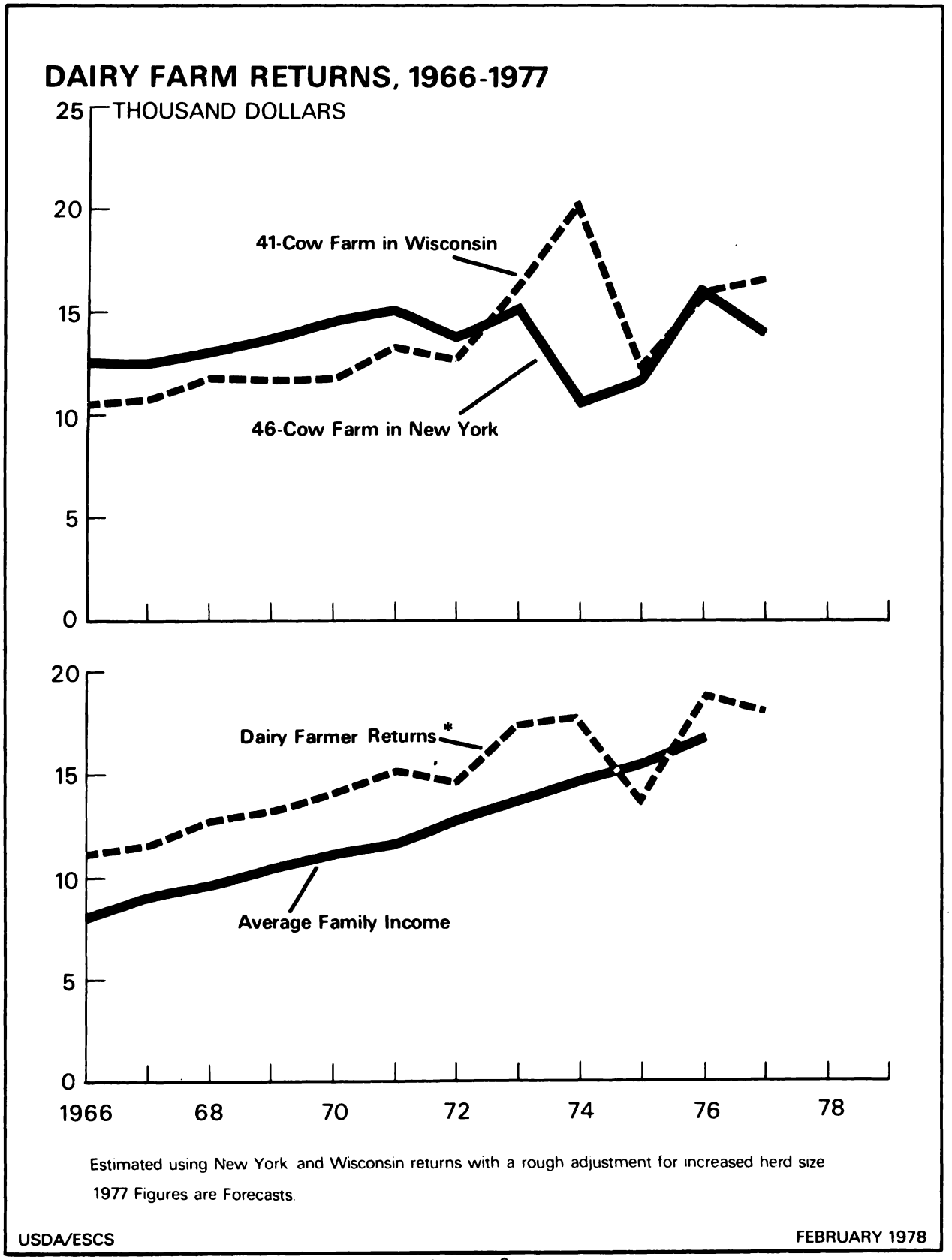

DAIRY FARM RETURNS AND INVESTMENT, 1976
BY SIZE OF HERD
DOLLARS
70
60
50
40
30
20
10
0
RETURNS *
Wisconsin
New York
NUMBER OF COWS
THOUSAND DOLLARS
600
500
400
300
200
100
0
INVESTMENT
New York
Wisconsin
10
20
40
60
80
100
120
140
160
180
200
NUMBER OF COWS
* RETURNS TO OPERATOR AND FAMILY LABOR, MANAGEMENT, AND INVESTMENT EQUITY.
SOURCE: DAIRY FARM ACCOUNTS, NEW YORK AND WISCONSIN EXTENSION SERVICES.
USDA/ESCS
JANUARY 1978

Figure 8



Estimated using New York and Wisconsin returns with a rough adjustment for increased herd size

1977 Figures are Forecasts.

USDA/ESCS FEBRUARY 1978

Figure 9

Retail Prices

Retail prices of dairy products have increased more slowly than the average for all food since 1965--the 92 percent for dairy products was almost the same as that for the entire Consumer Price Index (fig. 10). In other words, retail dairy product prices contributed a bit less to inflation than did other foods on the average and about the same amount as the average of all items.

The Next Ten Years

Many changes in the market organization and competitive climate in the dairy industry are foreshadowed by changes that have already taken place. The competitive situation and pricing system of the dairy industry in 1988, compared with 1978, will be quite different in several aspects.

Commercial dairy farms are expected to continue to grow larger in size and fewer in number. The number may drop from 200,000 to 100,000 in the next ten years. Farms of less than 50 cows will account for about a third of milk output. The modal size in areas where concentrates are not raised on dairy farms may well be nearly 100 cows (table 7). Unless significant changes are made to reduce the incentives to convert, production of manufacturing grade milk will be small enough within ten years so that it can be ignored for most policymaking purposes. This development is, of course, closely related to economies of scale in milk production. A high proportion of small milk producers who are likely to leave the business will be manufacturing milk producers.

Thus, we can anticipate a milk supply produced by large commercial grade A dairy farms. There is no reason to expect that a large proportion of these dairy farmers will be other than two- or three-man family farms, unless substantial incentives are provided by the system for integration by processors into milk production. The existence of substantial premiums over Class I prices could provide such an incentive.

If recent developments in the raw milk market continue, a market with three significant characteristics will emerge: (1) more centralized control of the disposition of most of the milk supply in large areas; (2) pooling on a regional or larger basis--much larger than many present market pools; and (3) fewer alternative sources of milk available to processors. In such a market, most processors would operate on full supply contracts. Countering such developments are the increased activities of antitrust agencies and some growth of smaller cooperatives.

The developing packaged milk market has the following characteristics:

- The dominant outlet is supermarket groups who set the pace of competition and prices.
- Supermarket groups are contract buyers. They buy private label and packer brand milk in large volumes. These contracts are easily moved between suppliers.
- Only large processors can provide the volume needed by supermarket groups.
- Multiunit processors have some advantage in dealing with supermarket groups because in many cases they have better coverage of the retail division sales area.
- Smaller processors must deal with nonsupermarket outlets or develop owned or franchised outlets.

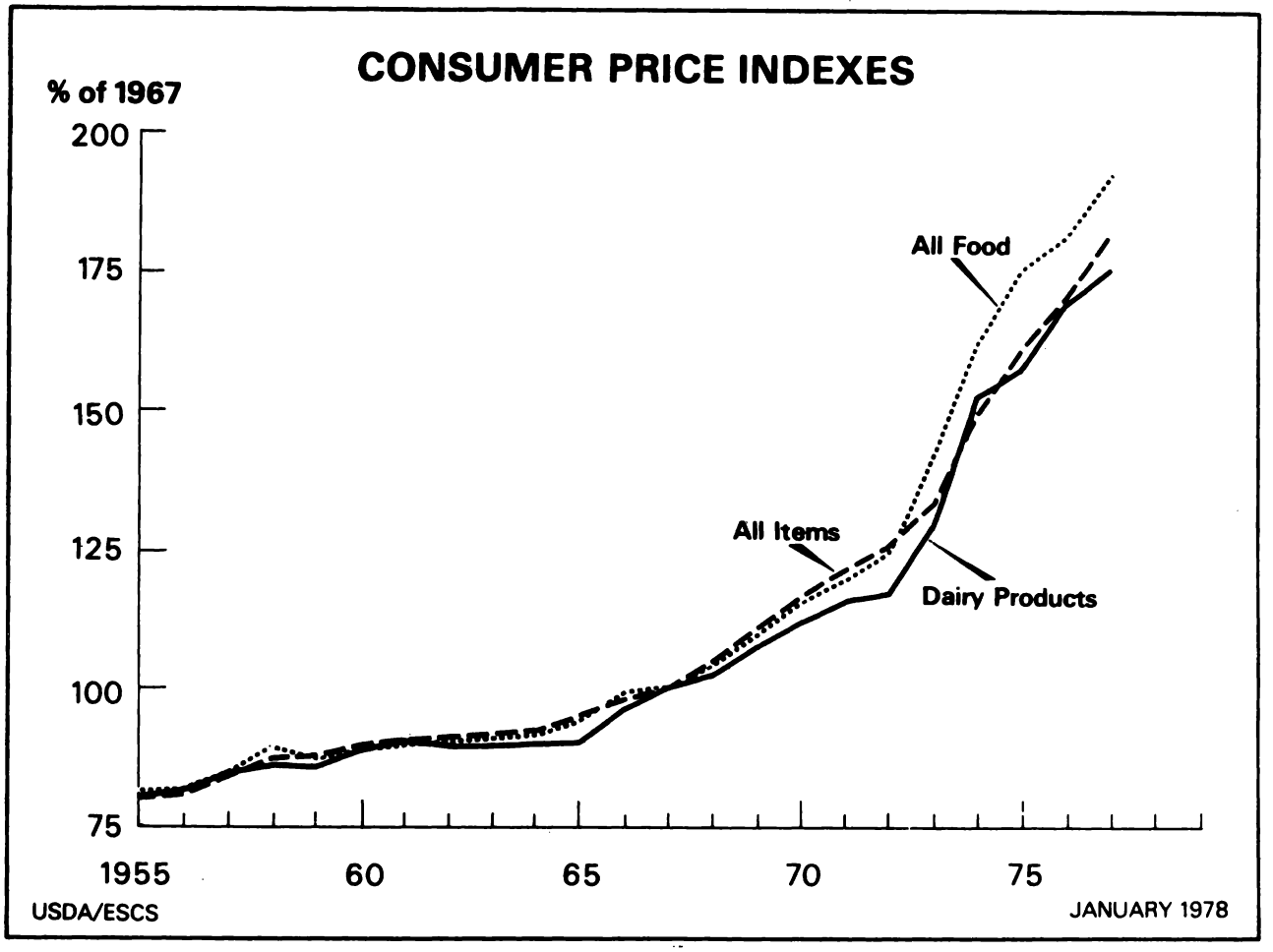


Figure 10

Table 7--Farms with milk cows and milk production, by size of herd, 1964, 1975, and 1985

Herd size	Farms with milk cows			Milk production		
	1964	1975	1985	1964	1975	1985
	Percent of total					
1-19	77	49	29	23	7	2
20-29	10	15	12	19	12	6
30-49	9	22	29	28	30	24
50-99	3	11	24	17	27	34
100 or more-	1	3	6	13	24	33
Total	100	100	100	100	100	100

Clearly, large fluid milk processors no longer have their former market power position. They confront large and powerful groups on both the buying and selling end. The following alternatives seem open to them: (1) to accept the role of provider of services on a cost-plus basis; (2) to give up the supermarket outlet entirely and develop other outlets, such as dairy stores; or (3) to become developers and marketers of specialty products, leaving the fluid milk business.

Milk processing will become even less attractive to proprietary processors, except where they have or can establish branded products. Fluid milk processing thus will increasingly be taken over by supermarket and convenience store chains and by cooperatives. And cooperatives' share of production for many manufactured products will grow.

Consumption

Continuation of the present dairy programs over the next ten years would mean that the relative prices of dairy products would not change drastically compared to other foods and to nonfoods. Under these conditions, consumption of dairy products would increase 9 to 10 percent in line with population growth. Per capita consumption of all dairy products would remain essentially unchanged. Per capita consumption of fluid milk would decline about 3 percent due to changes in the age structure of the population (smaller proportion of children) and perhaps another 1 percent due to competition from other beverages. Cheese consumption will continue to increase, although probably not at the rate of the past decade, offsetting the decline in fluid milk. Consumption of other dairy products has fairly well stabilized.

Consumption of butterfat in dairy products will stabilize, due to the continued but slowed replacement of whole milk by lowfat and skim milk being offset by increasing use of butterfat in cheese.

As consumers continue to shift to lowfat and skim milk, butter will increasingly be made from the butterfat removed from fluid milk used to produce lowfat products. Within ten years, this transition will be nearly complete and relatively little butter-powder will be made from whole milk, except during periods of overall surplus. As a result, butter production capacity would shrink and tend to move out of the Upper Midwest. Butter-powder production would no longer be the residual use of most milk, since the manufacturing capacity would no longer be available to handle it. Cheese would become the residual use, providing the major outlet for surplus milk. CCC purchases could become mostly cheese.

The impact of substitute ingredients in dairy products is only beginning to be felt. The now-rejected revision of the Food and Drug Administration standards of identity for ice cream would have permitted increased substitution of caseinates and whey for nonfat dry milk in ice cream production. Similar revisions of the standards for cheese--especially processed cheese and cheese foods--would have even greater impact. Substitution of vegetable fat for butterfat in cheese and other dairy products could have even more drastic effects on the amount of milk which would be required to produce the dairy products consumed and on the relative demand for butterfat and nonfat solids.

Milk Production

Production per cow likely will resume approximately the rate of increase of the sixties and early seventies, rising about one fourth in ten years to 13,500 to 14,000 pounds per cow per year. Cow numbers will continue to decline, although not at as rapid a rate as the increase in production per cow. Production increases of

this magnitude and consumption increasing in line with population would leave an approximate supply-demand balance, with only modest CCC purchases on average in the late 1980's.

With a continuation of current dairy programs and supports at 75 percent of parity after 1979, production will peak in the current marketing year and then decline modestly, reaching a low point of the cycle about 1981-82, and then beginning to increase once more (fig. 11 and table 8).

Commercial use will increase about in line with population. CCC removals would decline from the anticipated 5.9 billion pounds in 1977-78 to about 1 billion pounds per year in the early eighties. With supports at 75 percent of parity, production would then increase more rapidly than consumption and CCC removals would rise to about 2 billion pounds in 1982-83 and perhaps to 3 billion pounds in the mideighties.

If during that period there were two years of crop disaster here or abroad back-to-back, it is likely that feed prices would increase sharply and, not being fully reflected in the parity index and thus in milk support prices, milk production would decline. A single bad crop at any one time during that period would have much smaller consequences on feed prices and milk production.

ALTERNATIVES IN FEDERAL DAIRY POLICY

The most fundamental policy question centers on the objective to be achieved--stability or income enhancement--in other words, on the level of support. The present set of programs and many of the alternatives are consistent only with a stability objective. They can serve to prevent prices from dropping to disaster levels but they can be used to significantly enhance dairy farm incomes only at high costs to the Government, and thus to taxpayers, and to consumers. If significant income enhancement is the objective, other kinds of programs would have to be used to restrain production or encourage consumption or both.

Operations of the Present Programs

Feed (dairy ration) prices jumped from $3.49 per hundredweight in August 1972 to $5.67 in August 1973 and peaked at $6.91 in November 1974. The rise in milk prices did not keep pace with feed costs and producers were in a severe cost-price squeeze. Production dropped sharply.

Milk prices were well above support levels in 1973 and early 1974, even though the minimum support level was raised to 80 percent of parity by the Agriculture and Consumer Protection Act of 1973.

Substantial increases in imports were allowed under the economic control program to bring down dairy product prices, and manufacturing milk prices dropped to the support level in spring 1974.

Feed prices were fairly flat from late 1974 until mid-1977 but manufacturing milk prices kept rising. By 1976, the cost-price squeeze was over and milk production began its climb.

CCC removals were negligible in the 1973 and 1975 marketing years--less than 1 percent of farm milk marketings--but significant in 1974. In 1976, removals rose to 3.4 billion pounds milk equivalent and about doubled in 1977.

Outlets for CCC stocks are much smaller than they were in the early sixties. Domestic donation outlets were reduced by replacing commodity distribution to

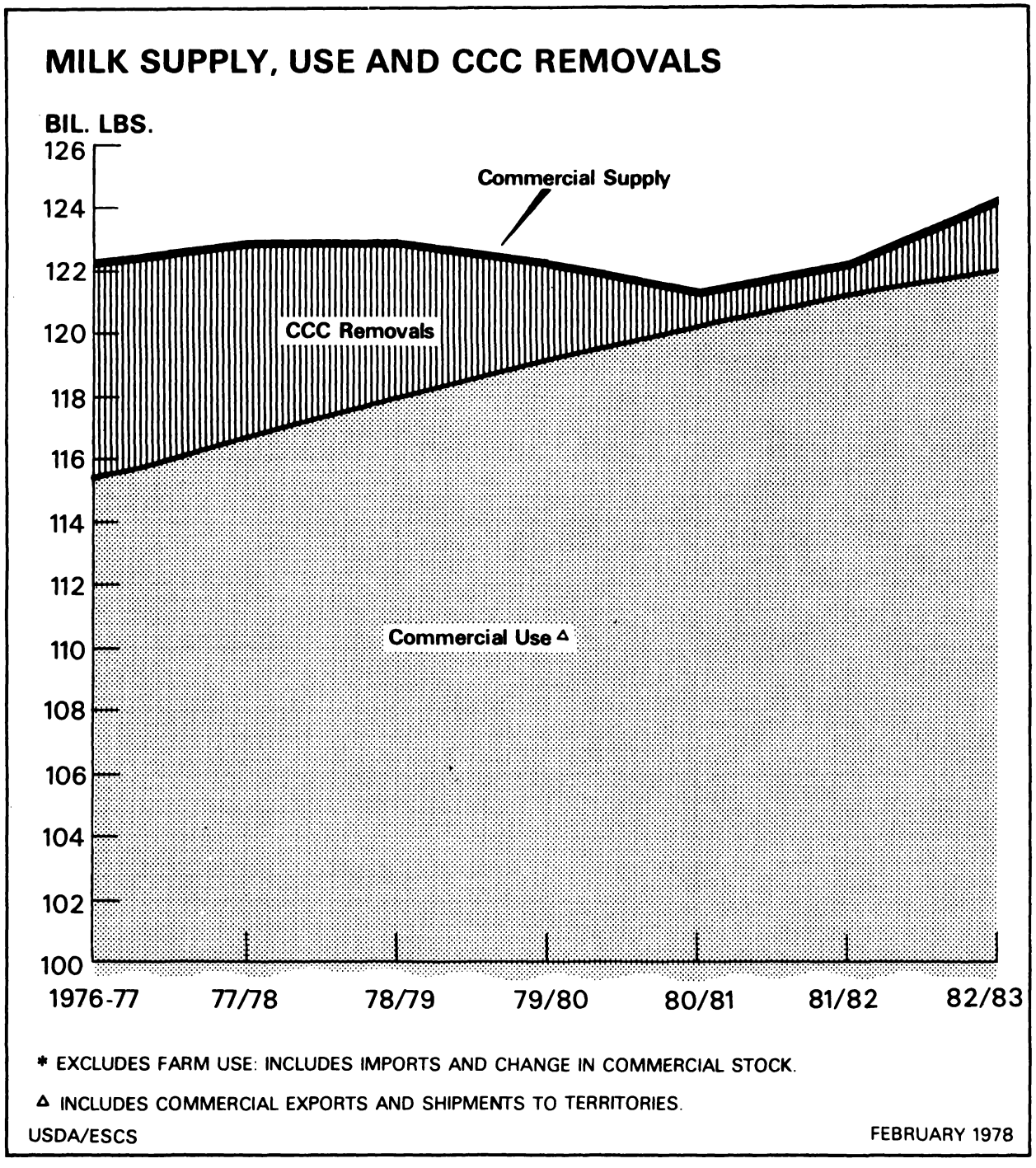

MILK SUPPLY, USE AND CCC REMOVALS
BIL. LBS.
126
124
122
120
118
116
114
112
110
108
106
104
102
100
Commercial Supply
CCC Removals
Commercial Use Δ
1976-77
77/78
78/79
79/80
80/81
81/82
82/83
* EXCLUDES FARM USE: INCLUDES IMPORTS AND CHANGE IN COMMERCIAL STOCK.
Δ INCLUDES COMMERCIAL EXPORTS AND SHIPMENTS TO TERRITORIES.
USDA/ESCS
FEBRUARY 1978

Figure 11

Table 8--Milk production, utilization and CCC removals

Item	Unit	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
Support level	Dol./cwt.	8.26/9.00	9.00/9.35	9.35/9.60	9.60/9.88	10.47	11.37	12.38
Percent of parity	Pct.		82	80	75	75	75	75
Milk production	Bil. lb.	122.5	123.8	123.5	123.0	122.0	122.7	124.5
Farm use	Bil. lb.	2.9	2.8	2.7	2.6	2.5	2.4	2.3
Marketings	Bil. lb.	119.6	121.0	120.8	120.4	119.5	120.3	122.2
Imports, stock change	Bil. lb.	2.7	1.7	1.9	1.8	1.8	1.8	1.8
Total	Bil. lb.	122.3	122.7	122.7	122.2	121.3	122.1	124.0
Commercial use	Bil. lb.	115.4	116.8	118.0	119.2	120.2	121.2	122.0
CCC net removals	Bil. lb.	6.9	5.9	4.7	3.0	1.1	0.9	2.0
CCC costs	Mil. dol.	732	697	537	338	125	108	258
Number of cows	Thous. lb.	11,007	10,890	10,655	10,350	10,040	9,855	9,750
Milk per cow	Thous. lb.	11,126	11,370	11,590	11,880	12,150	12,450	12,770
Prices received by farmers:								
Manufacturing grade	Dol./cwt.	8.57	9.15	9.50	9.90	10.90	12.40	13.00
All milk sold to plants	Dol./cwt.	9.63	10.15	10.55	10.95	12.00	13.50	14.05
Farm cash receipts	Mil. dol.	11,600	12,380	12,840	13,280	14,435	16,335	17,265

families by food stamps. Foreign donations are restricted by budgets and subsidized exports are gone.

The present problem of price levels too high for supply-demand conditions results from using the existing programs for income enhancement when they are only designed to provide stability at minimal levels. At the increasing minimum support levels required until October 1979, milk production is profitable for many farmers and production has expanded more rapidly than commercial sales. Government stocks and costs are rising and outlets, especially for nonfat dry milk, are limited.

The policy options available to deal with this immediate situation are limited and not very helpful. Import quotas could be tightened up to 50 percent of the base period amount, reducing Government purchases nearly pound-for-pound with the reduction in imports, but such a move is almost certainly ruled out by the present status of trade negotiations. Eliminating all quota imports, if possible, would reduce CCC purchases by about one-fifth in the 1978-79 marketing year. Authority exists to change the products purchased under the price support program or their relative prices, but these actions would not reduce Government costs or surpluses significantly, while creating significant adjustment problems in the industry and giving advantages to some groups of producers and handlers at the expense of others.

Manufacturing margins--the difference between CCC purchase prices for butter, powder, and cheese and U.S. average prices paid to farmers for manufacturing grade milk--widened when the support level was raised April 1, 1977, and producer prices were below the announced support level until December when they were nearly equal. Apparently, this was due to large supplies of milk and a consequent lack of competitive vigor among manufactured products plants. When supplies tightened in the fall, efforts to obtain larger shares of the available milk resulted in higher prices to producers. Hauling subsidies and cooperative patronage refunds, which are not included in the reported price paid to producers, made up most of the difference between the support price and the reported price paid to producers, although increases in them offset only a part of the increase in margins.

Disposition of Products

The major outlets for CCC stocks, especially of nonfat dry milk, are no longer available. Subsidized exports are gone and donations, both foreign and domestic, are limited by the disappearance of the commodity distribution program for families and foreign assistance budgets.

The remaining outlets for donations will take approximately:

	Butter	Cheese	Nonfat dry milk
		Million pounds	
Domestic:			
School lunch and welfare	90	85	50
Military and other	11	3	1
Foreign	0	0	200
Total	101	88	251

With donations at or near these levels and some concessional sales of nonfat dry milk for feed use at home and abroad, CCC inventories of butter and cheese will increase through the end of the 1978-79 marketing year and inventories of nonfat dry milk will be only modestly lower in September 1979 than they were two years earlier.

Sales back to the industry for unrestricted use normally can be made only when market prices rise to the mandated CCC resale prices--at present, 10 percent over purchase prices. In 1976 and early 1977, nonfat dry milk was sold for unrestricted use on a competitive bid basis to upgrade the quality of CCC's inventory, which was aging and declining in quality. CCC sales back to the industry displaced an approximately equal quantity of commercial sales by manufacturers to their customers, upgrading CCC's inventory but not reducing the total quantity of the inventory.

CCC's stocks of dairy products are now in reasonably good condition and sales for unrestricted use by competitive bids are not expected to be necessary, at least in the next several months.

Sales by CCC are being made at reduced prices for certain restricted uses. Such sales have usually been of minor quantities of off-condition products, normally of nonfat dry milk for animal feed. However, in recent months, sales have been made of high-moisture or aging nonfat dry milk for animal feed in significant quantities. These sales are expected to continue, perhaps in even larger quantities, since the sales prices around 25 cents per pound are favorable in competition with dried whey and caseinates for use in calf milk replacer and veal calf feed. Still larger quantities could be sold for use in mixed feeds at prices competitive with soybean meal, around 8 cents per pound.

Some sales of nonfat dry milk could be made abroad at reduced prices for calf milk replacer and veal calf feed.

Nonfat dry milk could be sold for the manufacture of casein or caseinates. Some imported casein would be displaced, adding to total domestic use of nonfat dry milk. However, such an action might be interpreted as interfering with international trade in casein. Another concern is that the whey resulting from the manufacture of casein is difficult to process or dispose of because of its high acid and mineral content.

Nonfat dry milk could be sold at reduced prices for use in baked goods, where it has been largely replaced by whey and blends. Such sales would displace regular commercial sales and it would be difficult to assure that the product was not diverted to an unauthorized use. (Compliance in animal feed sales is assured by denaturing the nonfat dry milk with a harmless dye or a substance such as fish oil.) Another problem is that it would be difficult to justify confining the low-price sales to a single major using industry. If all users were made eligible to buy the product at reduced prices, CCC would have to buy all of the nonfat dry milk produced and resell it at lower prices, thus operating as a marketing board for nonfat dry milk.

Lowering Class I Differentials

Milk supplies have been adequate and at times more than adequate during the past 20 years (fig. 6). The periods of surpluses and stock accumulation by the CCC have occurred when the entire price structure was higher than needed to bring forth the supply of milk which would clear the market at those prices.

Since price supports undergird the entire price structure, they obviously are a major determinant of the supply-demand balance and resulting surpluses, if any. But all of the other components of the price structure--the Class I differential, the geographic structure of Class I prices, and over-order payments to cooperatives--play a part. Clearly, discussion of which part of a structure of prices which moves in unison (though not precisely so in the case of over-order payments) is responsible for the ensuing supply-demand-price situation is unlikely to be

fruitful. All play a part. Lowering the average level of prices by lowering any or all parts will reduce production and stimulate consumption, tending toward a balance between the two.

The entire price structure was raised when support prices were increased April 1, 1977. Since price support levels cannot be lowered until October 1979 and over-order payments are at fairly modest levels (averaging 27 cents per hundredweight in 31 Federal order markets in January 1978), the only part of the price structure which could be significantly changed is the Federal order Class I differentials.

It would be possible, although hardly consistent with last April's action, to lower Class I differentials and thus to lower Federal order minimum prices to producers of fluid grade milk. Any change in Class I differentials would have to be made on the basis of evidence at a public hearing. Cooperatives probably would attempt to maintain effective prices near current levels. Action under the Capper-Volstead Act would then be required to make the action effective in reducing milk prices. This would require a finding of undue price enhancement due to monopolization or restraint of trade.

The effects of a possible reduction in Class I differentials were analyzed in terms of the outcome of such a reduction in a hypothetical year with large surpluses. Reducing Class I differentials in each market 40 cents and keeping the price for manufacturing grade milk at $9.00 would reduce output and thus lower expected Government purchases from 8.0 to 7.6 billion pounds. Cash receipts would be down about $220 million and fluid milk consumers would pay about $200 million less for 1 percent more fluid milk products.

Lowering Class I differentials would also reduce the economic incentive for many farmers to become pooled under Federal milk marketing orders by shifting from Grade B to Grade A milk production.

Modifications of the Purchase Program

A major problem with the present program is the difficulty of lowering price support levels when conditions indicate that existing price levels are calling forth substantially more milk than needed. Support levels are set for a year and, once announced, cannot be reduced. While this requirement facilitates planning by producers and processors, on occasion it delays needed adjustments.

The present situation provides an example. If it had been possible to lower the level of the support price to 75 percent of parity for the 1977/78 marketing year, Government removals would be reduced substantially. Cash farm receipts would also be smaller, consumer expenditures less, and retail prices lower.

The operations of the price support program could be improved if the Secretary had more flexibility in adjusting price support levels. Changes in the procedure for determining price support levels could lessen pressures.

Public hearings might be held at six-month intervals to receive evidence as to adjustments needed in the price support level and to review the level of class prices in Federal milk orders. The decision as to price support levels would be based solely upon evidence in the hearing record, extending to the price support program the use of procedures under Federal orders. If this procedure were followed, it probably would be desirable to develop a pricing standard which would emphasize assurance of adequate milk supplies and delete reference to a minimum price in relation to parity.

Any interested party who felt the decision was not consistent with the evidence introduced, or otherwise not in accordance with the law, would be entitled to judicial review and ultimately to review by the courts. Such procedures might be helpful in lessening the political pressures involved in reaching the price support decision. Also, such procedures would provide additional coordination between the price support and milk order programs.

Changing Relative Prices of Purchased Dairy Products

The relative value of butterfat and solids-not-fat is effectively determined by the support purchase prices of butter and powder under the price support program. Until 1970, legislation required supporting both milk for manufacturing use and butterfat in farm-separated cream between 75 and 90 percent of parity. This left the Department limited discretion in determining relative values of butterfat and solids-not-fat.

Relative prices of butter and nonfat dry milk have changed markedly, primarily as a result of price support actions. In 1960, the price per pound of butter was 4.3 times that of nonfat dry milk. The ratio stayed about 4 to 1 through 1965 and declined to near equality in 1974. Currently, it is about 1.5 to 1.

While there are no legal limits on the relative value of butterfat and nonfat solids set under the price support program, competition from other products places considerable constraints upon the prices which are set. Butterfat is in direct competition with vegetable fats in many uses and nonfat dry milk competes with whey and caseinates for many purposes. Since whey prices are not supported and cheese support prices are set so as to return to farmers the same amount as butter and nonfat dry milk combined, whey can and does sell at much lower prices than nonfat dry milk. This will continue to present problems until either whey is brought under the price support program or nonfat dry milk is removed from it. Either of these actions would present very difficult problems at present, the ramifications of which need to be explored in depth.

The main impact of changing relative purchase prices at this time would be on the mix of dairy products purchased under the price support program. Government costs would not be greatly affected. However, products with greater potential outlets from CCC inventories could be encouraged if there were any.

Because butter and nonfat dry milk are produced in fixed proportions from whole milk, the value resulting from their combined prices must be compared to the value of milk used in other manufactured products. The value of milk used for butter and nonfat dry milk production relative to the value of milk used in cheese production can be changed. Usually, the two have been set approximately equal. However, a tilt in purchase prices making milk more valuable for cheese production than for butter and nonfat dry milk production was in effect from April 1, 1976, to March 31, 1977, and in 1973-74. Tilting the relative value of milk used for a particular dairy product would, over time, result in more purchases of that product under the current price support program. The processing sector of the dairy industry would attempt to divert surplus milk into the use with the greatest value, creating adjustment problems for those plants unable to convert and for the producers selling milk to them.

Changing the Products Purchased

The Secretary of Agriculture can decide which dairy products will be purchased under the price support program. The longer run implications of purchasing only butter and nonfat dry milk are very similar to those of tilting the purchase prices in favor of butter and nonfat dry milk. The industry would adjust when milk is in

surplus so that surplus milk would be diverted into the product that the Government was willing to buy. Milk would be diverted into the manufacture of that product until the value of milk was approximately equal in all manufacturing uses. The larger the number of dairy products purchased the more easily the adjustments could be made in allocating surplus milk between manufacturing plants. On the other hand, butter and nonfat dry milk have advantages since they can be used as ingredients in a wide variety of products.

Price Standard

The price standard for the price support program has been stated in terms of parity since the Act was passed in 1949, when price supports for practically all other commodities used a similar parity standard. Beginning with the 1973 Act, there has been a shift for many commodities from parity to cost of production. Milk is now one of the few commodities using the parity standard.

Alternative standards include:

--cost of production

--prices paid for dairy farm inputs

--adequate supply

The primary mover in the parity index is the index of prices paid by all farmers for inputs used in production. The weights in this index are average purchases of inputs by all farmers, regardless of the products produced. This means that the index does not move one-to-one with the cost index of items purchased by dairy farmers. For example, feed has a weight of about 20 percent in the prices paid index but amounts to about 50 percent (including pasture and roughage) of dairy farm costs. Also, the prices paid index includes items not used by dairy farmers--feeder livestock and baby chicks, for example.

Cost of production is affected by the prices paid by farmers and by many other factors, including the impacts of bad weather on pasture and roughage production, yields of grain on those dairy farms producing their own grain, feeding rates, and technological change. All of the factors which affect cost or production have an impact on dairy farm income, but so many factors are involved in one measure that it is not possible to sort out the temporary from the longer lasting. Cost of production is difficult to compute and depends on many assumptions made by the analysts. For example, if cost of production is figured for the dairy enterprise only, rather than for the entire dairy farm including grain production, when grain prices are high and grain production is profitable, this will appear as a high cost for dairy farmers even though many of them are producing their own grain and profiting from it.

On the other hand, an index of prices paid by dairy farmers for inputs which they purchase is relatively free of the problems which plague computation of cost of production. It is simple to figure and thus is available currently.

An adequate supply standard would result from removing the limits on the Secretary's authority to set price support levels. Price supports would then be set at the level necessary to bring forth enough milk to meet consumer demand without building large CCC stocks.

If Federal dairy policy is to provide stability rather than significant income enhancement for dairy farmers, regardless of the standard used, flexibility must be

provided to the Secretary to determine the level of price support in the light of changing supply and demand conditions. None of these alternative standards reflects the factors influencing both supply and demand, so they could not be used to set the support price directly. Permanent legislation provides a range from 75 to 90 percent of parity with the present restriction of 80 to 90 percent of parity. If parity is retained as the price standard and stability is the objective, increasing productivity might make it necessary in time to reduce the minimum percentage of parity to 70 percent.

One possibility is to relate the discretionary price support range to CCC purchases. This would provide a narrower range for the Secretary's discretion but would relate that range to supply and demand conditions. For example, if CCC purchases were more than 3 percent of supply, the discretionary range might be 70 to 80 percent of parity. If CCC purchases were below 3 percent, the range could be 75 to 85 percent of parity.

These alternative standards are considered here for use in a purchase program such as the present one where support levels are selected to provide stability but not significant income enhancement. The choice of standards for an income enhancement program involves many other considerations.

Alternative Price Support Programs

The policy options concerning price supports and import regulation are closely linked. The options available depend upon whether the basic objective is stability or income enhancement (i.e., the level of price support) and whether or not imports are regulated.

If stability is the objective and imports can be regulated, a purchase program such as the present one can work. Government costs would be modest except at the point in the cycle where production was relatively large and prices would dip to the support level. The purchase program avoids the necessity for detailed regulation of individual dairy farms that is needed for either supply control or a cull cow incentive program. Problems with disposition of products would arise at the low point in the cycle, but could be handled because Government stocks would not accumulate year after year.

If substantial income enhancement is to be the objective, a standard would be needed to specify the level of income to be achieved. Parity prices would not provide a useful standard because of the tremendous changes in dairy farm productivity over the years.

The likeliest alternative is some form of parity income standard. If the objective were, for instance, to provide support at a level yielding income to dairy farmers equal to the average income of those in the nonfarm economy, a series of decisions would be required:

- --Which dairy farmers are to be included--everyone with one or more cows or commercial dairy farmers. How are commerical dairy farmers defined?
- --What income is to be included--only that from dairy production, all farm production, or total income from farm and nonfarm sources?
- --Which measure of dairy farm income is to be used--returns to labor, management, and capital or some subset of these? Including or excluding capital gains?

--What income measure for the nonfarm population is to be used--individual, household, or family income? Including or excluding capital gains?

Good measures of dairy farm income representing all U.S. dairy farms do not now exist. They would have to be developed. Methods would have to be developed to forecast income levels both for dairy farms and for nonfarm families in order to set the support levels in advance.

The specific programs analyzed as examples of each major type of alternative were chosen to make comparisons with the existing price support program most directly. Comparisons are made for two hypothetical situations--one with relatively large CCC removals under current programs and one with small removals. The specific payment programs analyzed are designed to keep the average return to producers (including the payment) at the same level as under current programs. Similarly, the particular supply control programs analyzed would keep prices at the same level as the current programs. An almost infinite variety of other specific examples could be analyzed, but this set provides direct comparisons.

Direct Payment Program

A direct payment program would be an application of target pricing. Payments would be made to producers when market prices fell below a stated target or support level. This kind of program separates income support from the price system.

Producer payments could be made on all milk or only on manufacturing milk. Payments could be made on all milk marketed by farmers or on some portion thereof based on quotas related to past production.

Three specific alternatives are analyzed, comparing the results with those under current programs (1) in a year with relatively large surpluses and (2) in a year with small surpluses:

--Payments on all milk marketed by farmers. No CCC removals.

--Payments on milk for manufactured products only. No CCC removals. Class I prices set at a fixed differential over target or market prices, whichever is higher.

--Payment on all milk marketed by farmers. CCC removals at 3.0 billion pounds milk equivalent.

The first alternative with payments on all milk marketed by farmers and no Government purchases would require, in a year with Government removals of 8.0 billion pounds under current programs, a payment of $2.00 per hundredweight in order to keep cash receipts of dairy farmers at the same level as under current programs (table 9). Payments to farmers would total $2.5 billion and consumer expenditures for 3 percent more fluid milk products and 10 percent more manufactured prducts would be 5 percent lower than under current programs. Government costs would be $2.5 billion compared to $0.9 billion under the current program.

In a year with Government removals of 1.0 billion pounds under current programs, the payment would be 25 cents per hundredweight, consumer expenditures would be 0.5 percent less than under current programs, and Government costs would be $290 million compared to $110 million under present programs (table 10).

The second alternative makes payments only on milk for manufacturing use and keeps Class I prices at the same level as under current programs by basing Class I prices

Table 9--Alternative support programs: Direct payments in a year with large surpluses

Item	Unit	Current programs	Direct payment program		
			No CCC removals		CCC removals
			Payments on all milk	Milk used in manufacturing	Payments on all milk
Production	Bil. lb.	125.5	125.5	125.5	125.5
Farm use	Bil. lb.	2.5	2.5	2.5	2.5
Farm marketings	Bil. lb.	123.0	123.0	123.0	123.0
Net imports, stock change	Bil. lb.	2.0	2.0	2.0	2.0
Total supply	Bil. lb.	125.0	125.0	125.0	125.0
Utilization:					
Fluid products	Bil. lb.	56.2	58.0	56.2	57.3
Manufactured products:					
Commercial sales	Bil. lb.	60.8	67.0	68.8	64.7
Government purchases	Bil. lb.	8.0	0	0	3.0
Total use	Bil. lb.	125.0	125.0	125.0	125.0
Milk prices:					
Fluid (Class I)	Dol./cwt.	11.30	9.27	11.30	10.03
Manufacturing	Dol./cwt.	9.00	6.97	6.37	7.73
All milk wholesale	Dol./cwt.	10.05	8.05	8.62	8.80
Payment	Dol./cwt.	0	2.00	2.63	1.25
Cash receipts	Mil. dol.	12,363	9,907	10,606	10,826
Payments	Mil. dol.	0	2,456	1,757	1,537
Total receipts	Mil. dol.	12,363	12,363	12,363	12,363
Government costs:					
CCC removals	Mil. dol.	876	0	0	290
Payments	Mil. dol.	0	2,456	1,757	1,537
Total	Mil. dol.	876	2,456	1,757	1,827
Consumer expenditures:					
Fluid products	Mil. dol.	10,752	9,924	10,752	10,242
Manufactured products*	Mil. dol.	10,652	10,373	10,244	10,507
Total	Mil. dol.	21,404	20,298	20,996	20,749
Consumer prices for dairy products	Index	100	89	94	93

*Includes expenditures for imported products.

Table 10--Alternative support programs: Direct payments in a year with small surpluses

Item	Unit	Current programs	Direct payment program: No CCC removals: Payments on-- All Milk	Direct payment program: No CCC removals: Payments on-- Milk used in manufacturing
Production	Bil. lb.	118.5	118.5	118.5
Farm use	Bil. lb.	2.5	2.5	2.5
Farm marketings	Bil. lb.	116.0	116.0	116.0
Net imports, stock change	Bil. lb.	2.0	2.0	2.0
Total supply	Bil. lb.	118.0	118.0	118.0
Utilization:				
Fluid products	Bil. lb.	56.2	56.4	56.2
Manufactured products:				
Commercial sales	Bil. lb.	60.8	61.6	61.8
Government purchases	Bil. lb.	1.0	0	0
Total use	Bil. lb.	118.0	118.0	118.0
Milk prices:				
Fluid (Class I)	Dol./cwt.	11.30	11.05	11.30
Manufacturing	Dol./cwt.	9.00	8.75	8.67
All milk wholesale	Dol./cwt.	10.12	9.87	9.94
Payment	Dol./cwt.	0	.25	.33
Cash receipts	Mil. dol.	11,733	11,448	11,535
Payments	Mil. dol.	0	290	197
Total receipts	Mil. dol.	11,733	11,738	11,732
Government costs:				
CCC removals	Mil. dol.	106	0	0
Payments	Mil. dol.	0	290	204
Total	Mil. dol.	106	290	204
Consumer expenditures:				
Fluid products	Mil. dol.	10,752	10,655	10,752
Manufactured products*	Mil. dol.	10,652	10,633	10,623
Total	Mil. dol.	21,404	21,238	21,375
Consumer prices for dairy products	Index	100	99	99

*Includes expenditures for imported products.

on the target price. In a year with large surpluses under current programs, this alternative would require a payment of $2.63 per hundredweight on milk used in manufactured products. This would mean Government costs of $1.8 billion, about double the cost of $0.9 billion under the current program. But consumer expenditures would be $41 million lower. All of the reduction in consumer expenditures would come from manufactured products.

In a year with relatively small surpluses under current programs, the payment on manufacturing milk would be 33 cents per hundredweight, Government costs $200 million, and consumer expenditures $30 million less than under current programs.

The third alternative combines a payment and purchase program in a manner analogous to the target price and price support loan programs for major crops. If Government removals were limited to 3.0 billion pounds under such a program, in a year when Government removals would have been 8.0 billion pounds under current programs, a payment of $1.25 per hundredweight on all milk would be required to keep cash receipts of dairymen at the same level as under current programs. This would mean Government costs of $1.6 billion, compared to $0.9 billion under current programs, and consumer expenditures $650 million less than the current programs.

There would be no Government purchases under such a program, in a year with Government removals of 1.0 billion pounds under current programs. Thus, the results would be the same as the second alternative.

With a payment program, compared to a purchase program:

--Consumer prices are lower.

--There are no Government stocks to dispose of.

--Government costs are larger and more visible.

--Costs are shifted partly from low-income to higher income consumers, because prices are lower and taxes are higher. The progressive income tax structure does the rest.

--There would be no effect on efficiency or on the ease of making resource adjustments, as long as supports are at modest levels.

--With high supports, supply control is also needed to control Government costs.

--If imports cannot be controlled, a payment program is the only alternative, because it lets dairy products sell at world prices.

Supply Control Program

If the basic objective is substantial income enhancement and supports are high, some form of supply control is necessary to limit Government costs. A national milk quota could be allocated to individual producers as a percentage of their historical production. This quota would limit the amount of milk that each producer could sell per month, quarter, or other time period. A penalty would be assessed against any milk sold above an individual production quota. The penalty would have to effectively reduce the value of the over-quota milk below the additional cost to produce it. Otherwise, farmers would have an incentive to produce milk in excess of quota.

A mandatory quota would offer the most effective means of supporting dairy farm prices while at the same time reducing Government costs and the amount of dairy products purchased. A voluntary supply control program could be used to provide supports only to producers that voluntarily reduced production and would be less effective in controlling production and supporting prices than mandatory quotas. Mandatory quotas would freeze existing patterns of resource use unless quotas were transferable between farms. In any event, supply control takes away part of a dairy farmer's freedom to make production decisions. Mandatory quotas would tend to reduce the rate of decline in the number of dairy farms as resources would be more fixed.

Quotas would immediately be worth money--windfall gains to the dairy farmers holding the original quotas. The higher milk prices would be capitalized into the quotas. Production costs would be increased for new producers and present farmers who bought additional quota. This would partially offset the purpose of the program to raise milk prices and farm income. Both the value of the quotas and the program's effectiveness in controlling supply would be affected by how easy it was for new or existing dairy farmers to acquire quotas.

An alternative to avoid creation of windfall gains would be for the Government to annually offer for sale to dairy farmers certificates representing the national milk quota. The value of the quota would then be retained by society. However, the price paid for quota certificates would offset the higher prices resulting from supply restriction and directly reduce net farm income, conflicting with a major reason for the program.

Supply control requires detailed regulation of individual producers and restricts their ability to adjust resource use. This leads to decreased efficiency over time. The loss of freedom is a major reason why producers have not generally favored supply control when it was proposed in the past.

Two different supply control programs are analyzed--one combined with a purchase program and the other relying entirely on supply control to achieve its objectives. Combining supply control with a purchase program in a year with CCC removals of 8 billion pounds under current programs would require reducing production by 5 billion pounds, leaving CCC removals of 3 billion pounds. Class prices would be at the same level and the all-wholesale-milk price would be up a bit due to less use of milk in manufactured products. Government costs would be $322 million, instead of $876 million under the present programs (table 11). Producer cash receipts would be $450 million less, because of smaller milk marketings.

A supply control program without Government purchases would require larger reductions in production. Prices would be about the same but cash receipts $720 million less than under current programs because of the larger reduction in production.

Compared to a purchase program, supply control:

--Leaves consumer prices unchanged.

--Reduces Government costs.

--Requires detailed regulation of individual producers.

--Restricts ability to adjust resources.

--Results in capitalization of quotas.

Table 11--Alternative support programs: Supply control

Item	Unit	In a year with large surplus			With small surplus	
		Current programs	Supply control		Current programs	Supply control
			With CCC removals	No CCC removals		No CCC removals
Production	Bil. lb.	125.5	120.5	117.0	118.0	117.0
Farm use	Bil. lb.	2.5	2.5	2.5	2.5	2.5
Farm marketings	Bil. lb.	123.0	118.0	115.0	116.0	115.0
Net imports, stock change	Bil. lb.	2.0	2.0	2.0	2.0	2.0
Total supply	Bil. lb.	125.0	120.0	117.0	118.0	117.0
Utilization:						
Fluid products	Bil. lb.	56.2	56.2	56.2	56.2	56.2
Manufactured products:						
Commercial sales	Bil. lb.	60.8	60.8	60.8	60.8	60.8
Government purchases	Bil. lb.	8.0	3.0	0	1.0	0
Total use	Bil. lb.	125.0	120.0	117.0	118.0	117.0
Milk prices:						
Fluid (Class I)	Dol./cwt.	11.30	11.30	11.30	11.30	11.30
Manufacturing	Dol./cwt.	9.00	9.00	9.00	9.00	9.00
All milk wholesale	Dol./cwt.	10.05	10.10	10.12	10.12	10.12
Payment	Dol./cwt.	0	0	0	0	0
Cash receipts	Mil. dol.	12,363	11,913	11,643	11,733	11,643
Payments	Mil. dol.	0	0	0	0	0
Total receipts	Mil. dol.	12,363	11,913	11,643	11,733	11,643
Government costs:						
CCC removals	Mil. dol.	876	322	0	106	0
Payments	Mil. dol.	0	0	0	0	0
Total	Mil. dol.	876	322	0	106	0

--Continued

Table 11--Alternative support programs: Supply control--Continued

Item	Unit	In a year with large surplus			With small surplus	
		Current programs	Supply control		Current programs	Supply control
			With CCC removals	No CCC removals		No CCC removals
Consumer expenditures:						
Fluid products	Mil. dol.	10,752	10,752	10,752	10,752	10,752
Manufactured products*	Mil. dol.	10,652	10,652	10,652	10,652	10,652
Total	Mil. dol.	21,404	21,404	21,404	21,404	21,404
Consumer prices for dairy products	Index	100	100	100	100	100

*Includes expenditures for imported products.

--Has not been favored by producers in the past because of the loss of freedom.

--Without import regulation, supply control will only work in combination with direct payments.

Cull Cow Incentive Payment

An incentive payment to dairy producers to cull producing cows and send them to the meat market would reduce both the number of dairy cows and milk production in the short run. Similar programs have been used by a number of European countries at various times. The availability of such an option on a standby basis would assist in lowering production at times like the present, but would drive beef prices down. It would have almost no effect on milk production in the long run. Such a program would be expensive and would require detailed regulation of individual dairy farms in order to avoid making payments for cows which would be culled in any case.

Combining Programs

Combining features of several programs provides more tools to deal with the problems faced by dairy price policy and avoids some of the problems which arise with a single program. A direct payment program on manufacturing milk has the advantage over a purchase program of allowing market prices of manufactured products to fully react to market forces, even when supplies are large. When prices are at support levels with the present program, manufactured products are less competitive with substitutes--butter with margarine and nonfat dry milk with whey and caseinates, for example. But the need to support returns to all producers at approximately the same level severely restricts the opportunity to tilt the prices for individual manufactured dairy products.

Combining a payment program with a manufacturing grade milk order would make it possible to let market prices reach market clearing levels and, at the same time, provide equivalent support to returns to dairy farmers regardless of the manufactured product in which their milk was used. Under such a program:

--A marketing order for manufacturing grade milk would be established. It would establish class prices for milk used in various manufactured products. Different classes and prices could be established for milk used in cheese, butter-powder, evaporated milk, ice cream, and other products.

--A payment would be made into the market pool equal to the difference between the class price and the target level.

--Similar provisions would be incorporated in all other milk marketing orders.

--A support purchase program could be continued with prices lower by the amount of the payment, if desired.

Such a program would have a number of effects and some problems:

--At a time of large surpluses, such as the present, prices of manufactured products would be lower and consumption larger. Cheese would be more competitive with meat, butter with margarine, and powder with whey and caseinates.

--The problem of distress milk would become more crucial. Distress milk is that which is surplus to a handler's needs when milk is plentiful and other handlers are not interested. Special order provisions would be required to deal with it.

-- The competitive market for manufacturing grade milk and the Minnesota-Wisconsin price series would disappear. Other methods of determining class price movers would be required, probably product prices for manufactured products and target prices for fluid products. This would make the manufacturing margin (make allowance) more crucial than at present. Regular reports of manufacturing costs would have to be required of processors, with auditing by Federal order market administrators.

While the differences in price elasticities of demand for milk used in different manufactured products are not large, such a program would remove constraints on pricing so that sales and consumption of each product could be maximized. This would reduce Government costs somewhat, compared to a program where the price for milk is the same regardless of the manufactured product made from it.

Import Regulation

Dairy import policy is shaped by these considerations:

—Dairy import policy will be strongly influenced by policy actions of other important dairy nations. If most of them remain highly protective, the United States is also likely to adhere to protective policies. If other countries become less protective or less aggressive in subsidizing exports, the United States may also lean toward a less restrictive policy.

—Every major dairy country in the world has government programs which regulate the dairy industry and most subsidize part or all of dairy production.

—There is no freely competitive world market for dairy products. Exports are subsidized by many countries. Imports are restricted by most major dairy countries.

—New Zealand and possibly Australia have a comparative advantage over the United States in milk production, due to abundant year-round forage. But, their capacity to expand production is limited. The United States has a comparative advantage over other major dairy countries in Europe.

—Supplies of dairy products available for export from Europe, New Zealand, and Australia vary because of weather and economic conditions in those countries. Periods of large supplies in those countries and of small supplies in the United States do not necessarily correspond.

—Without import regulation, varying supplies in foreign exporting countries would lead to instability in imports into the United States.

—If quotas were retained but increased (perhaps selectively) by, say, 25 percent and U.S. domestic dairy programs were continued, price levels could be adjusted to reduce production by the 400-million-pound increase in imports. The assurance of continuing U.S. markets would provide incentives for New Zealand and Australia to be reliable suppliers of those quantities of dairy products. Such an increase in import quotas would require adjustments on the part of U.S. milk producers and, with continuation of a purchase program, somewhat higher Government costs during the period of transition.

It would be possible to control imports through tariffs and fees, rather than quotas. This is probably ruled out by current trade negotiations which emphasize reducing or eliminating both tariffs and other fees.

If countervailing duties were levied on all subsidized exports, the volume of products which could be exported to the United States at prices below our domestic prices would be relatively small. Most such exports would be from New Zealand and Australia.

Milk Marketing Orders and Cooperatives

The policy questions and the options for dealing with them which are discussed below deal mostly with Federal order and cooperative policy, although interrelationships with price supports exist and are discussed. These are longer run policy issues which must be dealt with and do not bear directly on the current surplus problem.

How Comprehensive Should Federal Order Coverage Be?

The options include:

--All milk, both fluid grade and manufacturing grade.

--All fluid grade milk.

--Only enough fluid grade milk to meet fluid product needs plus a reserve.

Geographically,

--The entire conterminous United States (48 States).

--The 48 States less California.

--The present coverage.

A more comprehensive coverage of Federal orders would permit the system to do a number of things that it cannot do now and do others differently with different results, as will be seen in the ensuing discussion.

Including all or most of the 48 States likely would require a change from the present voluntary system through producer vote. This raises the second policy question.

How Voluntary Should the Federal Order System Be?

The marketing order system was developed for individual fluid milk markets. It is based on consent. Milk producers, usually acting through their cooperatives, must approve the issuance of a Federal order and its amendment.

The hearing process has provided a method of modifying milk orders to keep them attuned to rapid changes in milk marketing. On the other hand, the voluntary nature of the program has meant that it is difficult for the Government to make changes until producers feel they are needed. As markets become more interrelated, it is necessary to look at the entire system of orders when making changes. This complicates the problem of obtaining consensus among producers and requires greater leadership on the part of Government in securing producer awareness of needed changes in the order system. This also means that it takes longer to make changes.

The present voluntary system means that producers in most State-regulated markets and in the unregulated areas between some Federal orders are in a position to let the Federal order system carry the reserves and the burden of the surplus, if any. Over time, the number of areas able to stay out of Federal orders has declined sharply, but there are still some.

The present procedure requiring that two-thirds of the producers who vote must approve gives veto power to one-third-plus-one of those voting. An alternative, if producer consent is required, is to reduce the requirement from two-thirds to a majority vote.

California, Hawaii, and Alaska are sufficiently removed from the rest of the U.S. dairy economy that a Federal order system which included all of the country except those three States could achieve most of the same things that one including all 50 States could accomplish, at least for the next few years. The relationship of the dairy industries in those States to the rest of the country is largely through manufactured dairy product markets and the price support program.

A part of the two preceding questions is that of the...

Number and Size of Market Orders

Decreasing isolation of milk markets has brought about mergers and territorial expansions of Federal milk marketing orders over the past 25 years. From a peak of 85 market orders in 1962, the number has been reduced to 47, although the area under regulation has increased.

When fluid milk markets were relatively isolated, they were defined in terms of a marketing area where handlers competed in selling fluid milk products. Milk delivered to those handlers became regulated under the order. In today's greatly changed markets, appropriate considerations include:

--Whether a Federal order that is carrying the surplus for unregulated or State-regulated areas should be expanded to include that area.

--Whether the orders should be merged when a large Federal order is carrying the surplus for a smaller Federal order.

--Whether Federal orders with overlapping supply areas should be merged.

--Whether a Federal order market pool should be at least as large as the pool operated by the major cooperative in the market.

--Whether a Federal order market pool should be at least as large as the sales area of the largest handler in the market.

Defining the scope of regulation in these ways would mean a substantial further reduction in the number of market orders. All orders except those in isolated areas would become at least regional in scope.

Is Classified Pricing Needed?

The existence of a classified pricing system has become a controversial issue in recent years. It has been attacked by antitrust agencies and consumer groups as representing exploitation of the consumer.

A classified pricing system by definition raises prices of milk for fluid use (Class I) over prices for use in manufactured products (Class II). It is often incorrectly assumed that the entire difference between Class I and Class II prices represents price discrimination.

Much of this confusion arises out of discussing the average price as the price. This obscures the fact that milk prices, like the prices of practically all other goods and services, come in a wide variety of shapes and sizes. In other words, we

must think in terms of structures of prices, not of the Class I price or the Class II price.

On the average, for the entire Federal order system in 1975, minimum Class I prices averaged $9.36 per hundredweight while Class II prices averaged $7.65 per hundredweight. But this difference of $1.71 per hundredweight is an average of differentials ranging from $1.26 in Chicago to $3.15 in Miami.

Any pricing system for milk meeting the sanitary requirements for fluid use must recognize and deal with the basic fact that milk which is indistinguishable at the farm is no longer the same, in an economic sense, when it reaches the fluid milk plant rather than the manufactured products plant.

Beyond the farm level, there are significant costs in supplying milk to fluid milk processors which are not incurred when supplying milk to manufacturers of butter, cheese, and nonfat dry milk. Transportation, the most obvious and significant of these costs, appears as a separate item under Federal milk marketing orders and is reflected in Class I and blend prices.

Other costs unique to providing milk to fluid milk processing plants arise out of the need to provide that milk in the form and on the schedule desired by the processor. The very significant costs of providing this kind of service must be covered by the pricing system, whether or not it takes the form of the present classified pricing system. Current estimates of these costs for average situations are about 60 cents per hundredweight (table 12). But, these costs vary widely.

Thus, a classified pricing system or something akin to it is necessitated by the economics of the situation. The additional costs of producing and marketing milk for fluid products as compared to milk for manufactured products must be covered by the pricing system, either in Federal order minimum class prices or in service charges of the cooperatives. But, over and above these costs, policy options remain. So the policy question is raised.

How Much Price Discrimination, If Any?

One option is to reduce Class I differentials to minimal levels. This would mean setting the Class I differential at the base markets to cover the additional costs of producing and marketing milk for fluid use (or a part of the marketing costs, leaving the remainder to be covered by cooperative service charges) and establishing a geographic structure of Class I milk prices on economic principles. This would provide a set of Class I prices including no economic price discrimination.

Another option would be to raise Class I differentials, and, at the same time, lower manufacturing milk price supports by an equal amount. Because of differences in demand elasticities for fluid milk and manufactured dairy products, this would raise total returns to dairy farmers. Returns to Grade A farmers would increase and those to manufacturing milk producers would decrease, unless all milk were pooled. Then, total returns could be pooled and allocated to different groups of producers in various ways.

Structure of Class I prices. Class I differentials can be varied from the existing level, but there are limits on the lower side. The additional costs of handling milk for fluid products, over and above the costs for milk used in manufactured products, need to be covered by the Class I differential or by over-order payments to cooperatives.

Redesigning the geographic structure of Class I prices on the following principles would lower the Federal order Class I differentials in many markets, raise them in a

Table 12 --Average additional intramarket costs of providing bulk milk to the fluid market 1/

Item	Cost per cwt. on milk to which applied: Average	Cost per cwt. on milk to which applied: Range	Milk on which cost is incurred	Milk which can be charged	Effective additional cost per cwt. on milk shipped to fluid market
	-----Cents-----		-----Percent-----		Cents
Health & quality inspections, permits	3	2-4	100	60	4
Market administrator fees	3.5	2-5	100	60	5
Handling cost of reserve:					
Seasonal	18	10-600	27	60	8
Daily	34	10-300	17	60	10
Storage 2/	*	0.5-10	*		2
Receiving and reshipping	6	4-12	18	60	2
Transportation 3/	14	0-60	60	60	14
Shrinkage	5	*	60	60	5
Give-up 4/	10	*	60	60	10
Total				60	60

*Highly variable. 1/ The costs represent the average additional costs of providing milk to fluid processors above the cost of the milk delivered to a manufacturing plant in the milkshed. These costs are incurred by firms providing bulk milk to fluid processing plants rather than to manufacturing plants. In the long run, unless they are reimbursed, either directly or indirectly, the milk will tend to go to manufacturing rather than to fluid use. These costs are averages for the U.S. They are not marginal costs in a specific fluid market. At the margin of the fluid supply area, the marginal cost will be greater, although some of the components will be lower. 2/ Extra storage costs personally estimated by researchers after discussion with plant personnel. 3/ Excludes transportation costs covered by the transportation allowance under Federal orders. 4/ Highly variable upward depending upon immediate circumstances. The profits given up by a manufacturing plant when it ships milk go to a fluid milk plant instead of processing and selling the milk itself.

few distant markets, and reduce the average for the Federal order system. Any change should reflect current milk transportation costs of about 22 cents per hundredweight per 100 miles, compared to 15 cents in the existing Federal order price structure, but not in the same manner as the existing Class I price structure.

The geographic structure of Class I prices which one would anticipate in a competitive market on the basis of economic location theory has these characteristics: From the major surplus production area (surplus with respect to fluid milk needs), prices would increase to more distant markets, reflecting transportation costs and local supplies and demands. The largest supply of milk over and above local needs is in an area extending from Minnesota to New York and Pennsylvania. Thus, any market in the United States could be supplied from some point in that zone at the base price plus transportation. So, as long as milk can move freely from one area to another, that price plus transportation would set the upper limit on prices in any market. If the supply in a market area elsewhere in the country is greater than local needs, the price at that point would be lower than base-zone-plus-transportation by an amount large enough to move the milk to a point where it is needed. With large supplies on the West Coast, prices there would be no higher than in the eastern base zone.

The principle of comparative advantage and the economics of location indicate that, in a competitive system responding to economic forces, milk for fluid use (including a reserve to meet day-to-day and seasonal fluctuations) would be produced near consumption centers, if it can be produced at or below the cost of milk from the base zone. Milk for use in manufactured products would generally be produced in the base zone. Thus, if the structure of prices brings forth large volumes of milk for use in manufactured products over the amounts needed for a fluid milk reserve in areas outside the base zone, the geographic structure of prices is not aligned in accord with economic principles.

When supplies are tight, as in 1973, surpluses above reserve requirements are small everywhere except in the Upper Midwest, the Northeast, and on the West Coast. When production increases, supplies above fluid needs-plus-reserve develop in many areas. This means that a geographic price structure which is appropriate at one time is not appropriate under other supply-demand conditions. When supplies are very large, as they were in the mid-sixties, a relatively flat price surface is appropriate--rather like a soup bowl which is flat on the bottom and only rises toward the edges. When supplies are tight, the appropriate price surface more nearly approaches the inverted cone shape of base-zone-plus-transportation.

The relatively inflexible geographic structure of Class I prices played a role during the sixties in encouraging milk production in many areas beyond the needs of the fluid milk market. However, changed conditions in 1973 reduced the surpluses. At the same time, transportation costs for bulk milk increased sharply with escalating fuel prices and general inflation. The Federal order minimum Class I price structure has not reflected these increased transportation costs. Cooperatives in most but not all areas adjusted their prices to reflect all or a major part of those costs, coming much closer to achieving a Wisconsin-plus-transportation price surface.

But, in 1978, production is rising faster than demand in most parts of the country and the geographic structure of prices should become flatter again. Thus, flexibility is required. The policy question for the longer run is: should that kind of flexibility be provided by changing the Federal order Class I price structure as supply-demand conditions change or is it preferable to set the Federal order minimums at the levels appropriate for ample supply conditions (when there are

surpluses most everywhere) and let market forces create a geographic price structure appropriate for tight supply conditions when they arise?

Methods of determining class prices. Since the mid-sixties, Class I prices have moved up and down with changes in the average price paid for manufacturing grade milk in Minnesota and Wisconsin. Good measures of manufacturing milk prices have been relatively easy to obtain and have provided a sensitive measure of changes in the overall supply-demand balance in the dairy economy.

This system worked well in the sixties and early seventies in providing a mover for the entire class price structure. Events in 1973-75 raise doubts as to its adequacy. Rapid fluctuations in the M-W series reflected short-run supply and demand conditions for all milk, including import actions, but sent misleading signals to producers, handlers, and consumers as to what to expect.

At a time when feed prices were jumping, milk prices dropped. Within a few months, the situation turned around and milk prices rose nearly as sharply as they had dropped. This is undesirable in a system intended to provide a measure of stability.

This suggests that a more effective system might be developed which would cut the direct tie that binds Class I prices by fixed differentials to the M-W price for manufacturing grade milk. Research underway on alternative methods of determining Class I prices ("economic formulas") may provide a basis for a better performing system if supply-demand principles are respected.

On the other hand, if 1973-75 is a once-in-a-lifetime occurence, a change to economic indexes may represent overkill.

A change in price movers would become necessary if the competitive market for manufacturing grade milk disappeared due either to conversion to Grade A or to extension of Federal order regulation to all milk. The principal alternative to the M-W price for manufacturing grade milk in such circumstances is a product-price formula. It would be based on the plant selling prices of the principal manufactured products--butter, powder, and cheese--with appropriate yield factors and margins to cover processing costs.

Federal order prices for Class III milk--that used in butter, nonfat dry milk, and cheese--have generally been set at the M-W price level since the sixties. It has been proposed that Class III Federal order prices be set at the M-W price or the support price, whichever is higher. This would be effective only when the M-W price dips below the support price. This would raise the costs of plants manufacturing butter, powder, and cheese which are regulated under Federal orders, compared to those not so regulated, and make them noncompetitive in the product markets. They would be subject to a cost-price squeeze that was not affecting their unregulated competitors.

Protein pricing and standards. Changing the standards of composition for skim and lowfat milk to require higher levels of solids-not-fat would increase the demand for nonfat solids and make lowfat and skim milk more palatable to those consumers who dislike the "watery" flavor. Lowfat milk with added nonfat solids has been available to consumers for many years at prices which more than covered the added costs of fortification. Sales of fortified lowfat and skim milk have dropped from 76 percent of all lowfat and skim milk in 1969 to 39 percent in 1976. Consumers appear to have become accustomed to the less rich flavor of unfortified products and to prefer them at prevailing price differences.

Standards for fluid milk products are established by the individual States and by the Food and Drug Administration. Changing standards in over 50 jurisdictions is a time-consuming process. Raising the minimum for nonfat solids would be a reversal of the downtrend of 20 years.

When standards for other foods have been changed to require fortification, it has been done on the basis of a need for increased amounts of a particular nutrient in the American diet. This argument could not be made effectively for protein. In 1976, the average diet provided twice as much protein as needed. The argument appears more persuasive for calcium, as in 1976 the average diet provided only 14 percent more calcium than needed. The most recent Household Food Consumption Survey (1965-66) found that 31 percent of the households consumed food falling below the recommended dietary allowances for calcium. But it is not milk drinkers who need more calcium. It is those who do not drink milk. So putting more nonfat solids (and thus calcium) into milk products will not help to meet the calcium deficiency of people who do not drink milk.

Until World War II, butterfat carried most of the market value of milk. With the development of the milk drying business during and since World War II, the nonfat solids portion acquired increased value. Early pricing plans provided for a basic price of milk with a variation depending on the butterfat content. This type of pricing plan has generally been used, both in fluid milk and manufacturing milk markets, from the twenties to date. In recent years, plans assigning a specific value to solids-not-fat or protein have been adopted by the State of California and by some cooperatives in other areas.

Component pricing, in which milk is paid for on the basis of solids-not-fat or protein as well as butterfat, could provide incentives to producers to stimulate higher levels of production of nonfat solids or protein. This could add to the surplus of nonfat dry milk by encouraging producers to breed and select cows, feed, and manage on the basis of protein production as well as total milk production. Without raising the standards, component pricing would provide an incentive to fluid milk processors to reduce the level of nonfat solids to avoid the added costs.

Costs of testing for both nonfat solids and butterfat in California are only about 14 percent higher than for butterfat testing alone. An additional pound of nonfat solids in a hundredweight of producer milk was worth from 7 to 24 cents to plant operators in additional yields of nonfat dry milk (7 cents), American cheese (22 cents), or cottage cheese (24 cents) at mid-1977 prices. In the case of fluid whole milk, however, the value of additional solids or more protein is less clear as there is no clear-cut indication that consumers are willing to pay more for additional solids or protein. The increased attention being given to the testing and accounting of milk on a multiple component basis will facilitate the transition to a new pricing system.

Multiple component pricing can be introduced in Federal milk orders whenever there is sufficient interest on the part of producers. With the increased movement of milk between markets and the need to maintain intermarket price alignment, for any new method of pricing to succeed, a uniform plan would have to be acceptable to producers in all markets. A multiple component pricing plan applied to producers also would have to be applied to handlers.

Who Gets What?

In other words, what prices are paid to different groups of producers? This involves questions both of pricing methods and of pooling methods, including who is pooled (i.e., what coverage of Federal orders). If both fluid grade and manufacturing

grade milk producers are covered by Federal orders, they will share in the distribution of the proceeds of Class I sales. If only fluid grade milk producers are covered, as at present, manufacturing grade milk producers will not participate. Differing levels of the Class I differential, methods of determining class prices, and geographic price structures will yield different levels of prices to producers in various regions, with consequent effects on their incomes.

A related set of options revolves around the question of conversion from Grade B to Grade A production. Present practices encourage conversion, for reasons previously stated. If Class I differentials were reduced significantly, there would be less incentive to convert. On the other hand, changes in pooling requirements in the Upper Midwest marketing orders could make it feasible for nearly all Grade B producers desiring to stay in milk production to convert fairly shortly. This would make all producers eligible for the somewhat higher blend prices under Federal orders. It would also mean the end of the competitively determined pay price for manufactured grade milk in Minnesota and Wisconsin and new pricing methods would have to be devised.

Substantial reserves of fluid grade milk are required under the present system, for reasons already discussed. The reserve requirement is in the order of 30 percent of fluid product consumption at the present time. Measures which would reduce the reserve requirements would obviously improve efficiency in milk production and marketing, because more milk would be produced in low-cost areas and subsequently made into manufactured products. A number of actions would help to reduce reserve requirements.

Continued merging of Federal orders would make larger quantities of milk eligible for use at any given plant without additional cost due to allocation or other provisions of the Federal orders. Expanding the Federal order system to include presently non-federally regulated supplies of milk would also increase somewhat the supplies available for use at any one point.

The most controversial proposal is to remove the disincentives to use reconstituted and filled milk under Federal milk marketing orders. (Reconstituted milk is made from nonfat dry milk and butterfat and filled milk from nonfat dry milk and vegetable fat.) If the Federal order provisions which require a handler making reconstituted or filled milk to pay the equivalent of Class I prices were removed or, alternatively, changed to Class I prices in the Upper Midwest, these products would be available in markets at a considerable distance from the Upper Midwest and could be used to fill the gap between locally available supplies and demand without importing fluid milk from surplus areas. This would only apply in areas at a considerable distance from the surplus production area, since the cost of removing the water, transporting the products, and putting the water back in would exceed the cost of fluid milk imported from the surplus area in areas closer at hand. How much effect it would have on need for reserve supplies of milk in distant markets is somewhat problematical. Consumers are much slower to switch from one product to another than are manufacturers. It would probably take substantial price differentials to persuade them to switch when reserve supplies were short. This might well mean larger variations in retail prices than consumers are willing to accept. It would certainly not represent stability, as long as consumers did not regard them as very close substitutes.

Thus, reconstituted milk would only serve as a reserve if it could be easily substituted in the marketplace for fresh fluid milk and this would only be the case if reconstituted milk was indistinguishable from fresh milk or equally acceptable.

As long as consumers regard reconstituted and fresh milk as different products, reconstituted milk is not a reserve for fresh milk. If a significant group of

consumers switched from fresh milk to reconstituted milk and then did not switch back when fresh milk supplies recovered, fluid milk needs in the market would be permanently reduced. When local supplies were reduced to the new level, the one-way shift to reconstituted milk would recur in the short-supply season.

How Detailed Should Regulation Be?

A Federal order is a long and complex document. A complete set of milk marketing orders fills several hundred pages in the Code of Federal Regulations. One of the major reasons for the length and complexity of Federal orders is the requirement to treat all producers and handlers in similar circumstances the same. No handler is to pay a lower price than his competitors for milk used in the same product, except for reasons spelled out in the order. Similarly, no producer is to receive a lower price than other producers in similar circumstances. Equity among producers and among handlers is an essential component of the pricing system. If there were not a general feeling that they were receiving equal treatment, Federal orders would not be acceptable.

Many of the provisions of Federal orders including plant pooling requirements, allocation rules, the rules dealing with reconstitution, treatment of producer-dealers, pricing of out-of-order milk, and many others are in the order to provide such equal treatment. But their application results in friction from those who feel disadvantaged by some particular provision. In general, less regulation is to be preferred to more regulation, providing the programs still work. This report can only raise the question. An intensive study would be required to lay out the effects of less detailed regulation.

The need for detailed regulation in some areas would be much less if some of the options presented in earlier sections were selected. If a comprehensive Federal order system covering all milk in the United States were to be instituted, clearly regulations dealing with non-federally regulated milk would be unnecessary. With large regional orders, the need for regulations dealing with other-order milk would be minimized. If all milk, both Grade A and Grade B, were regulated under Federal orders, there would be no need for detailed plant pooling requirements. On the other hand, more detailed regulation would probably be required to determine who gets what in a comprehensive pooling system including all milk.

How Minimal Should Minimum Prices Be?
How Much Cooperative Market Power?

These questions are closely interrelated. They involve policy decisions under the milk order program and in terms of cooperative policy.

The question of how minimal minimum prices should be applies to policy decisions with respect to the size of the Class I differential, the geographic structure of Class I prices, payment for market-wide services, and probably other questions.

The nature of the policy decision has been indicated previously with respect to the Class I price structure. The appropriate structure of Class I prices, as well as the level, changes with supply and demand conditions. Present practice changes the level but not the structure. The policy choice is between (1) specifying a minimum level of Class I prices and letting the market raise prices above that level, creating a new price structure, when economic conditions dictate and (2) adjusting Class I price structures in Federal orders to reflect changing economic conditions at least annually.

Specifying only minimal levels greatly simplifies the task of regulation. It allows market forces to operate more freely. But, when prevailing prices are well above

the minimums, it also requires the Department to undertake much more difficult analytical tasks in appraising cooperative milk prices to determine whether or not undue price enhancement may exist.

If the Class I price structure specified in Federal orders is changed, say, annually to reflect changing supply and demand conditions, the task of Federal order regulation is made substantially more complex, although the analyses required to determine the appropriate geographic structure of Class I prices are the same as those which would be required to evaluate cooperative prices for the existence of possible undue price enhancement.

The existence of a structure of Federal order Class I prices which conformed with supply and demand conditions would make it possible to use those prices as the basis for analysis of potential undue price enhancement. In such a case, undue price enhancement could be identified provisionally as prices which exceeded Federal order Class I minimums plus the cost of services provided by cooperatives. A legal finding of undue price discrimination would still rest on a finding of monopolization or restraint of trade.

An integral part of the policy question is to what extent does the Government wish to encourage, through market orders or other means, the development of market power by cooperatives? As has been indicated earlier, a number of dairy marketing cooperatives now have a measure of market power and some price enhancement results.

However, a change in the basic objective of Federal dairy price policy from stability to substantial income enhancement would complicate the problem of identifying possible undue price enhancement. The kind of economic standard applied in the 1974-75 case would no longer be available. Under those conditions, the only standard for identifying the existence of possible undue price enhancement would be cost of service.

There are options in how undue price enhancement cases are handled. The Department can continue to act solely on the basis of complaints received from the public. Until the 1976 petition from the National Consumers Congress, all complaints had been made by business firms which felt they had been damaged by cooperative actions.

The alternative is to establish a monitoring procedure which would regularly screen the prices of a large number of agricultural commodities marketed by cooperatives for signs of unusually high prices or rapid increases. These would then be subjected to analysis to determine if there were indications of undue price enhancement due to monopolization or restraint of trade.

Almost all of the handling of Capper-Volstead cases in the past has been conducted internally. That has resulted in a widespread impression that there has never been a Capper-Volstead case. There is also a widespread impression that no one knows what undue price enhancement is--in other words, that there are no standards. In view of these conditions, one alternative is to engage in a public procedure of some type to solicit views on what procedures and standards should be and subsequently to issue a Departmental statement setting forth both standards and procedures.

Payments for market-wide services. Many cooperatives perform services which benefit not only their own members but also other producers in the market, by performing necessary functions for the market as a whole. But, the cooperatives bear the costs without being able to share them with all those who benefit. These functions include managing and routing the milk supply and providing for disposition of milk not used for fluid products. In principle, it would be possible to reimburse cooperatives for the costs of such market-wide services. However, development of a

detailed plan to do so is extremely complex. Very careful and extensive analysis will be required to determine whether or not it is feasible.

If a workable system can be developed to pay cooperatives for market-wide services, it would help to distinguish the cost of services from other charges of cooperatives. It would also come close to solving the free rider problem, where nonmembers and members of limited-service cooperatives obtain the advantages of the marketwide services performed by cooperatives but do not pay any of the costs.

Policy Options for the Longer Run

Basic policy questions to be addressed start with a re-examination of the need for and purpose of Federal dairy programs. A significant research effort will be needed to understand what the dairy economy would be like without price supports or milk marketing orders.

Price Supports and Import Regulation

The relative costs and feasibility of alternative methods of price support depend on (1) whether the objective is stability of farm prices and incomes or substantial income enhancement (i.e., on the level of supports) and (2) whether or not import control is possible.

If stability is the objective and imports can be regulated, a purchase program such as the present one can work. Government costs would be modest except at the point in the cycle where production was relatively large and prices would dip to the support level. The purchase program avoids the necessity for detailed regulation of individual dairy farms that is needed for either supply control or a cull cow incentive program. Problems with disposition of products would arise at the low point in the cycle, but could be handled because Government stocks would not accumulate year after year. A payment program would avoid even these occasional stock disposal problems.

If stability is the objective and imports cannot be controlled, a purchase program such as the present one would be trying to support world dairy prices. Then, a direct payment program is the most feasible alternative, although payments and Government costs would be sizeable. This would allow manufactured dairy products to sell at world prices in the domestic market. A supply control program would have to shrink U.S. production to fluid milk needs plus a reserve and the manufactured products made out of the reserve milk would still have to compete at world dairy product prices.

With an objective of substantial income enhancement and imports regulated, a supply control program would be necessary to keep Government costs at modest levels, although consumer prices would be high. The cost of supply control is loss of freedom on the part of dairy farmers and capitalization of quotas. None of the forms of supply control avoid these problems. A cull cow incentive program could be used to achieve control of supplies but at substantially higher Government costs than a supply control program using quotas. Either a purchase or direct payment program would result in high Government costs as production rose in response to the higher prices.

If the objective is income enhancement and imports are not controlled, the only feasible policy option is a payment program with supply control. With such a program, Government costs and producer incomes would be high and consumer prices for manufactured dairy products relatively low.

Milk Marketing Orders and Cooperative Policy

With the flexibility afforded by the Agricultural Marketing Agreement Act of 1937, the Federal order system has evolved in the past 40 years from a system treating individual markets separately to a unified system in which all markets are parts of a near national system. But the development of such a system is never completed...further evolution is both possible and desirable. A number of major policy issues are involved in determining the direction for further evolution. These issues involve tradeoffs.

The Federal order system developed as a voluntary enterprise. Producers in any area retained the right to decide whether or not they wished to come under a Federal order. This worked acceptably as long as markets were fairly well isolated, but the Nation east of the Rockies is now one system of interrelated markets, only some of which are Federally regulated. Pockets of privilege exist between Federal orders where producers enjoy the benefits of the existence of the orders without paying a part of the cost. Increasingly, decisions are having to be made on a Federal order system basis rather than an individual order basis. This means it takes longer to make program changes since it is more difficult to obtain consensus among producers throughout the country. So the time is approaching when consideration will need to be given as to whether it is possible to achieve a truly national system of Federal orders and to make changes in a timely fashion within the framework of a voluntary program for individual markets.

If a national system of Federal orders with comprehensive coverage of all milk or at least all fluid grade milk is achieved, the choice between minimal regulation and more detailed regulation to ensure equality of treatment becomes simpler. With essentially all milk regulated and Federal order pools regional in scope, a substantial part of the detailed regulation now required to deal with out-of-order milk would no longer be required.

The Federal order price structure needs frequent modification to bring it into line with current supply-demand conditions. In making such changes, several policy decisions are required, including to what extent Federal order prices are to be minimums with market prices expected to be above them a substantial part of the time. In the latter case, more frequent adjustments would be required in the Federal order price structure to reflect changing supply-demand conditions.

The choice between stability and income-enhancement which is so fundamental in the price support program also enters Federal order decisionmaking in deciding how much price discrimination, if any, is to be incorporated in the Class I price differential.

APPENDIX

Foreign Programs

Milk pricing and marketing is highly regulated in most countries. Features of each type of program discussed previously are employed by one or more countries.

Purchase Programs Abroad

The European Economic Community (EC) has a purchase program. Its target price is about equivalent to the U.S. support price. The target price is achieved by purchases of nonfat dry milk and butter at specified intervention prices. The EC price support for cheese is effective only in Italy and there only for specified Italian varieties. Surpluses are disposed of through export--both donations and subsidized commercial exports--and numerous domestic subsidy programs for human consumption and animal feed. Attempts at reducing production have been ineffective. Export subsidies prompted the recent U.S. countervailing duty actions.

Payment Programs Abroad

Norway, Sweden, and Finland have dairy programs that, in part, incorporate features of a payment program. Only a fraction of the full costs of dairy products are recovered directly through the marketplace--about 50 percent in Norway and Sweden and 70 percent in Finland. The remainder comes from subsidy and/or transfers.

In Norway, government payments to farmers and subsidies to consumers are geared to the intended level of support. In Sweden, milk prices to farmers are negotiated between government and farmer representatives and revised semi-annually in accord with short-run developments. The Swedish equalization fund, built up partly by transfers among suppliers of milk for fluid and for manufacturing and, more importantly, government payments including the consumer subsidy, is the source of the nonmarket payments for milk deliveries in that country.

In Finland, 30 percent of the costs of dairy products are covered by a consumer subsidy of 14 percent of the desired price support level plus a variety of other compensations. These other compensations include payments for adverse regional production and transportation costs, premiums for up to seven cows per herd, and vacation payments.

Even with these payments and subsidies, prices for manufactured dairy products in these countries are substantially higher than in the United States. However, fluid milk prices are generally lower in Norway and Sweden than in the United States, and in Finland are about the same as in the United States despite producer milk prices about 45 percent higher.

Supply Control Programs Abroad

Canada has probably the most extensive dairy supply control program of any major dairy producing country. However, other countries either have established delivery quotas at the farm level (Switzerland) or are contemplating such quotas (Australia and Austria). In each of these countries, farmers receive or will receive normally supported prices for in-quota milk and are or will be severely penalized for milk marketed above quotas.

In Canada, the quota program applies only to manufacturing ("industrial") milk as opposed to fluid. Quotas are established for each Province and then broken down into individual producer shares. Quotas are transferable among producers within Provinces. In Canada, during the early months of 1976-77, the first year of meaningful penalties, the penalty for overdelivery was $8.60 per 100 pounds of milk, compared to the net target price of $7.59 per 100 pounds of milk (after routine levies and before subsidy). However, in subsequent developments, the penalties levied in 1976-77 were eventually remitted to overproducing dairymen, or were offered to be remitted.

Distribution of Increased or Decreased Farm Revenue

The increase or decrease in cash farm receipts provided to dairy farmers by a change in milk prices is not distributed equally among all dairy farmers but in proportion to output. For example, increasing the price support from 80 to 85 percent of parity would increase gross farm sales about $910 million. The gross farm income would be about $322 higher for the operator of a typical farm with 1 to 19 cows, while it would be about $17,700 higher for the typical farm with more than 100 cows. The opposite would be true for a similar decrease in milk price (appendix table 1).

Appendix table 1--Distribution of increased revenue per farm among U.S. dairy farms, by size of herd

Farm size	Percent of farms	Increasing support price from 80 to 85 percent of parity
		Average dollars/farm
1 to 19 cows	49	322
20 to 29 cows	15	1,848
30 to 49 cows	22	3,091
50 to 99 cows	11	5,398
100+ cows	3	17,747

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